A Study on Policymaking in New Zealand: An Exploratory Study of Two Cases

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ABSTRACT

This thesis seeks to explore why some issues are more prominent than others. I seek to find out why the debate on Genetic Engineering featured so prominently; whilst Nano-molecular Technology (NMT) received little if no attention when it comes to its government policy formulation. Using Agenda Setting Theory and Veto Player Theory, I seek to explain the differences between the policy debate processes and its outcomes for the GM and NMT.

The findings of this thesis suggest Agenda Setting Theory failed to account for the lack of change in policy on the issue of Genetic Engineering. It is argued that Veto Player Theory is a better model for explaining policy outcomes and predicting the likelihood of policy changes.

CHAPTER 1

INTRODUCTION

Why do some issues become important societal debates, dominate the national media and monopolize the attention of a nation's political actors, whereas other issues are decided by small groups of experts?

Frank Baumgartner.

For many years the New Zealand technology-related social science researches questions "what" or "who" have tended to be descriptive in nature. The emphasis of these types of research has been on public perception of science, focusing on what they think about science and its effects on society.[1] These studies seek to find out what people think and not why they come to form certain opinions and conclusions. On this note, I can say that this thesis is a break from that tradition. Firstly, I ask why some topics are perceived as more important than others, using NZ examples of genetic engineering and nanotechnology's policies as case studies. More importantly, I go further and question whether the mechanism in which most claim are how policies are influenced is true in the NZ context.

[1] See Andrew J Cook John R Fairweather, nanotechnology - Ethical and Social Issues: Results from New Zealand focus groups, Research Report No. 281, December 2005.

Genetic engineering and nanotechnology

Research in science and technology is often touted as the key driver for economic growth in a mature Western democracy like New Zealand. genetic engineering as a technology has been the subject of intense public and political debate, both internationally and in New Zealand, with implications that may have far-reaching social, environmental and economic effects. However this is not the case for nanotechnology in New Zealand, where significant investments and scientific research (both public and private) are being conducted on nanotechnology (NMT) without much public scrutiny. Whilst, the New Zealand public is all too aware of GE and the controversy surrounding the technology; hardly anyone knows about nanotechnology, not to mention the impact it has on our everyday lives. Why is this the case? Since nanotechnology as an emergent technology shares features that parallel developments in genetic engineering one should expect similar treatment from the media and public in general. And yet, both sets of technologies are perceived differently. Most interested participants in a debate traditionally—in accordance to their respective beliefs and interests— occupy either a pro or anti stance towards the issue. Yet, few question why some technology is subjected to more public scrutiny and media attention than others. In essence, I am asking why there is such a divergence in the attitudes towards genetic engineering and nanotechnology research in spite of the obvious common characteristics shared by both issues. A further reason for choosing GE and nanotechnology is their relevance to NZ. Both types of technologies are important to NZ as there is extensive research being undertaken within New Zealand.

Both forms of technologies receive substantial public and private funding-- either in the past as in the case of genetic engineering or in the present-- into research and development. Whilst GE receives much media attention with the ensuing public scrutiny followed by series of public protests and anti-GE campaign; nanotechnology hardly receives any media scrutiny, and as a result the absence of public knowledge and debate. Whilst the potential ill-effects of nanotechnology goes unnoticed, we are all well aware of the debates surrounding GE. Thus, a study and comparison of the topics is necessary to find out the underlying reason for such discrepancies. Secondly, by choosing these topics I am able to showcase agenda setting and Veto Player Theory operating in the New Zealand context in relation to policymaking.

The similarities circumstances shared by both sets of technologies are:

- developing New Zealand expertise and research investment
- increasing high levels of international investment in both public and commercial research
- apprehension over the safety of the technology and its impact

Table 1.1 Differences in public attitudes towards GM and NMT

Genetic engineering	Nanotechnology
Public Debate and Awareness	No Public Debate and Little or No Awareness
Expert Disagreement (both domestic and International)	No Expert Disagreement
Public Protest (Political action)	No Public Protest (No political action)
Public and Private Funding into Research	Public and Private Funding into Research

Source: Author's own data

What are genetic engineering and nanotechnology?

For a better understanding of the topics I will briefly outline the areas of research for the respective technologies followed by the purported risks and benefits. In simple terms, genetic engineering, as defined by the 2001 Report by Royal Commission on genetic engineering is:

- The deletion, change or moving of genes within an organism, or
- The transfer of genes from one organism to another, or
- The modification of existing genes or the construction of new genes and their incorporation into any organism.

For the purposes of this thesis, I consider the term "genetic engineering" to be equivalent to and interchangeable with "genetic modification". This definition precludes standard breeding techniques, such as cloning, hybridization which might be construed as GM although these techniques may be included as part of the discussion.

There are a multitude of definitions for nanotechnology. For the purposes of this thesis and in line with most literature in this field, I follow the United States' National nanotechnology Initiative definition: "the understanding and control of matter at dimensions of roughly 1 to 100 nanometres, where unique phenomena enable novel applications." (Roadmap for Science: Nanoscience and Nanotechnologies, 2006: 11). The Royal Society and Royal Academy of Engineering in the UK make a further distinction between nanoscience and nanotechnologies, by stating "nanoscience focuses on the understanding of properties at the nanoscale, while nanotechnology involves the design, characterization, production or amplification of structures, devices and systems by controlling shape and size at nanometer scale." However, I will not make a distinction and all Nano-related science thereafter shall be referred to as nanotechnology. Moreover, I will intermittently use the abbreviation Nanotech or NMT (Nano-molecular-technology).

Current NZ-specific GE research

A great deal of genetic research in New Zealand in the period in which this thesis is looking at, involves the use of genetic modification technology to isolate, identify and characterize genes from a wide range of species, including humans (RCGM 2001). This research is carried out in containment and is low risk because any modified organisms produced are of low virulence and are not able to reproduce outside of a lab environment. Areas of research include:

- **Land-based production**

The use of cloning to isolate genes, as a example for sequencing or structural studies, is widespread in all university, medical and Crown Research Institute (CRI) laboratories studying gene structure and function in NZ. AgResearch uses this technique to study the genes of cattle, sheep, plants, microorganisms and humans.

- **Human health application**

  Inserting human genes into cattle to increase protein production in cows as an efficient way of producing myelin, a protein considered vital to combat multiple-sclerosis.

- **Animal welfare and feed**

  Research aimed to understand how genes function in the whole animal. The use of transgenic mice can provide a model for inherited or non-infectious disease, allowing for the development of new treatments and cures.

- **Environmental Protection/ Pest Control**

  Landcare Research uses GM products from overseas to test on possums in our contained facilities in New Zealand to evaluate their effects on possum infertility. This is a more environmentally sound method compared to the use of 1080 poison which kills indiscriminately.

- **Industrial application**

  Crop and Food Research proposed the modification of the biochemical pathways for carotenoids and flavonoids to improve nutritional quality and colour and to develop new colour combinations of ornamental flowers. The technology is also applicable to develop potential pharmaceuticals and to introduce new pest and disease resistance characteristics in plants.

Amongst the potential risks and threats of GE:

- **Cross contamination (both intra- and inter-species)**

  Cross contamination of GE seeds with non-modified organic crops thus wiping out NZ organic export market and ruining our "Green" image. Create new breeds of hybrids capable of withstanding weed killers and out-competing the native flora, thus wiping out native NZ plants.

- **Food Safety**

  There is a small chance of food allergies and poisoning caused by GE food products. There is a widespread concern about the as-yet-unknown long-term effects of consuming GE food materials, especially with commercial considerations driving the use of GE in food/crop production with little long term studies done on the effects of GE food on human health.

- **Spiritual and Religious Consideration**

  Native Maori's customary and spiritual belief that life is sacred and should be free from human interference and manipulation. Moreover, interspecies gene transfer is considered as tampering with nature.

Current Nanoscience and nanotechnology capability in New Zealand

Nearly all of NZ's R&D on NMT can be classed as investigator-led basic research with an emphasis on the synthesis and study of nano-structured materials for industrial uses and the development of devices that incorporate nanoscaled structures or materials. According to the government report *Roadmap for Science: Nanoscience and Nanotechnologies*, New Zealand has a range of nanoscale research and development

programmes with investments in 6 particular fields. The six fields of research in NZ are outlined as follow.

Field 1: Nanofabrication- the key for engineering nanostructures since it allows precise control over device dimensions and properties.

Field 2: Electronic and Optical Materials- research on high-temperature superconductors, strongly correlated electron systems, semiconducting and metallic nitrides, glass ceramics, conducting polymers and surface enhanced Raman scattering.

Field 3: Molecular Materials- diverse applications and researchers in this theme have expertise in many of these areas, such as: molecular magnets, solar energy and electroluminescent materials, functional surfaces and supramolecular assemblies. These larger ordered systems are critical to success in a number of applications including solar cells, organic light emitting diodes (OLEDs), sensors and magnets.

Field 4: Soft Materials- where physics meets chemistry, and where physics and chemistry meet biology. Soft materials and complex fluids are ubiquitous not only in biology, but also in industrial arenas as diverse as oil recovery, food technology, cosmetics and personal care products, electronic devices, and biotechnologies.

Field 5: Advanced Materials- research on new inorganic hybrid materials giving rise to new chemical, physical and biological functionality of materials including inorganic-natural fibre hybrid materials, conducting polymers, solid state and advanced ceramic

science, thin film and coatings science, and surface analysis techniques to materials research.

Field 6: The intersection of Nanoscience and Biology- the biological, biomedical and medical applications of advanced materials and nanotechnology are some of the most exciting, novel and potentially, most life-enhancing. Understanding and exploiting the promise of biological systems is a complex and challenging task which is best addressed through a multidisciplinary approach.

Figure 1.2 shows the examples of anticipated areas of applications for nanotechnologies, such as medical and diagnostics. Convergences between applications in some areas, such as drug delivery and therapeutics, imaging and diagnostics, are likely. Not shown are the tools and measurement protocols for creating and studying nanoscale materials and features.

Figure 1.2 Anticipated fields of NMT applications

Source: Nanoscience and nanotechnology- Roadmap for Science (2006)

Table 1.3 Near-to-medium term NMT research and applications

Current Applications	Possible near term (five years) applications
Computer chip components (nanoscaled circuitry)	Pesticides with nanocapsules that aid uptake or timed release
Sunscreens (nanoscale zinc oxides and titanium dioxides that more efficiently absorb ultraviolet rays)	Food packaging that improves shelf life and/or indicates freshness
Fuel additives (Cerium (IV) oxide) to burn fuel more efficiently	Tougher composite coating containing carbon nanotubes for car bumpers
Water or stain repellent clothing	Lower energy consuming field effect display television sets using carbon nanotubes
Anti-microbial wound dressings (containing silver nanoparticles)	Medical imaging devices using nanoscaled particles
Tennis balls (clay nanoparticles in core reduce air loss and double ball's life)	More effective water or waste filtration devices using nano-structured filters

Source: Nano Initiave Report 2009

Nano Investments

According to the Bioethics Council report (2003) the NZ Government is already investing in nanotechnology in the following areas.

- The MacDiarmid Institute, one of the Centres of Research Excellence, involves researchers from five New Zealand universities and two Crown research Institutes. Their work focuses on four major research themes: nano-engineering

materials and devices; novel electronics, electro-optic and superconducting materials; functional materials; and soft materials. The institute has operational funds of $13,400,000 over the three years and capital funds of $9,800,000.

- The New Economy Research Funds (NERF) and Marsden Funding have invested in nanotechnology. For instance, Industrial Research Limited in conjunction with Otago University and the Cawthron Institute, has received $5.9 million dollars over five years from NERF. The researchers hope to make nanometer-sized particles that can be used to target drugs to specific sites, resulting in better performance and fewer side-effects. Advanced drug-delivery technologies are predicted to reach half the value of the worldwide pharmaceutical market. It is considered a high-risk research in terms of return on investment, but once successful could result in some very high-value, low-volume products ideal for exporting from NZ.
- An additional NERF programme involving the Universities of Canterbury, Victoria and Otago, Industrial Research Limited, and the Institute of Geological and Nuclear Sciences looks at nano-engineered materials for optics and electronics, with funding of approximately $1.5 million over four years (2000-2004). This gave rise to New Zealand's first nanotechnology start-up company, Nanocluster Devices Limited.

Worldwide there has been a push by various governments to invest in nanotechnology. The US in particular, is eager to maintain its scientific and economic dominance through Nano-research and development. For instance, the House of Representatives in May 2003

approved a $2.4 billion bill to continue the US National nanotechnology Initiative for the following three years. These investments led the Bioethics Council to conclude:

> nanotechnology will be the largest government-funded science programme since the Space Race, excedding even the Human Genome Project. It is estimated that there are more than 500 nanotech companies active throughout Europe, North America and Asia, including leading transnationals such as BASF, L'Oreal, Bayer, Exxon, IBM and Hewlett Packard.

Other examples include the US National Science Foundation's report on a 2002 conference, *Converging Technologies for Improving Performance.* In the report it envisioned

- Expanding human cognition and communication (through enhancement of the human mind)
- Improving health and physical capacities (via nanobio processes, nanotechnology-based implants and regenerative biosystems, nanoscale tools and brain-to-brain and brain-to-machine interfaces)
- Enhancing group and societal outcomes (via various new technologies)
- Strengthening national defence (through such developments as Nano spying devices and non-drug treatments to enhance martial performance).

These examples give us an insight into the tremendous paradigm-shifting potential identified by various leading powers. Critics on the other hand warn of the dangers associated with this technology. Bill Joy, the co-founder of Sun Microsystems famously wrote:

> ….as with nuclear technology, it is far easier to create destructive uses for nanotechnology than constructive ones. Nanotechnologies has clear military and terrorist uses, and you need not be suicidal to release a massively destructive nanotechnological device…We are being propelled into this new century with no plan, no control, no brakes. Have we already gone too far down the path to alter

> course? I don't believe so, but we aren't trying yet, and the last chance to assert control—fail-safe point—is rapidly approaching. We have our first pet robots, as well as commercially available genetic engineering techniques, and our nano-scale techniques are advancing rapidly. While the development of these technologies proceeds through a number of steps, it isn't necessarily the case as happened in the Manhattan Project and the Trinity test that the last step in proving a technology is large and hard. The breakthrough to wild self- replication in robotics, genetic engineering, or nanotechnology could come suddenly, reprising the surprise we felt when we learned of the cloning of a mammal.

Risks and Threats

Because NMT is a novel technology, any negative effects of its application remain largely unknown. Some of the recently developed nanoparticle products may have unintended negative consequences. Researchers have discovered that silver nanoparticles used in socks only to reduce foot odor are being released in the wash with possible negative consequences (Lubick, N., 2008). It has been determined that silver nanoparticles, which are bacteriostatic, may then destroy beneficial bacteria which are important for breaking down organic matter in waste treatment plants or farms. A study at the University of Rochester found that when rats breathed in nanoparticles, the particles settled in the brain and lungs, which led to significant increases in biomarkers for inflammation and stress response. A newspaper article reports that Chinese workers in a paint factory developed serious lung disease and nanoparticles were found in their lungs, raising the prospect of NMT as the asbestos of 21st Century (Wu J, Liu W, Xue C et al., 2009).

A major study published in Nature nanotechnology suggests some forms of carbon nanotubes – a poster child for the "nanotechnology revolution" – could be as harmful as asbestos if inhaled in sufficient quantities. Anthony Seaton of the Institute of

Occupational Medicine in Edinburgh, Scotland, who contributed to the article on carbon nanotubes said "We know that some of them probably have the potential to cause mesothelioma (a form of lethal cancer). So those sorts of materials need to be handled very carefully." In the absence of specific nano-regulation forthcoming from governments, Paul and Lyons (2008) have called for an exclusion of engineered nanoparticles from organic food. In spite of these dangers, activists have yet to fill the streets in protest of its use a la GM. It is specifically for this reason that I decide to compare Nanotech with GE in this study of New Zealand's policymaking process.

Policymaking in New Zealand

There are multiple levels of policymaking in any political system. Policymaking at the highest level in NZ is at the national level, it is also at a level where it can have the most effect on the highest number of people as it affects the entire country. Due to the absence of a federal system with a relatively small population of just over 4 million, it is also the level at which all major political actors and groups operate. As a consequence, policymaking on this level receives the most media attention in NZ.

The coverage of the "mundane issues" on interest rates (although controlled by experts) to parliamentary debates on changes to employment law and minimum wage are good examples of media exposure of policymaking at a national level. Not surprisingly, or perhaps because of this, it is where the Prime Minister, Cabinet Ministers, leaders of opposition parties and other bodies engage with issue on the national political agenda. This is the highest strata of policymaking where general political activities are covered by

the press. Beneath this layer, lie the technocrats who are experts in their own field. These members of specialized communities usually work with a single issue, such as, Ministry of Agriculture and Fisheries on matters concerning New Zealand's bio-security; Waitangi Tribunal on Treaty of Waitangi settlement with native Maori. In comparison to the general political theater at the national level, these specialists rarely become the subject of the media's attention. Accordingly, specialists do not receive a similar degree of public scrutiny; in some extreme cases the citizenry remains unaware of their activities or even their existence.

Members of these specialist cliques are in close contact and often times have collaboration with other members. These specialists often find themselves engaging in group think. "It is the mode of thinking that people engage in when they are deeply involved in a cohesive in group, when the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action" (Janis, 1972: 8–9). As a result clique mentality develops and "group think" occurs. A development that is inevitable considering they share a common outlook on the issues that concern whilst at the same time facing critics attacking them from the outside. Both factors contribute to group cohesiveness amongst specialists. Thus, it can be said that policies are at times made by generalist whilst at other times by specialists. An array of policies in New Zealand are made by many of the communities mentioned, ranging from the most general to the highly specialized. I will show that generalists have succeeded in expanding the policymaking process for GE/GM whilst the experts are so far successful in containing and limiting discussions on NMT (Nano-molecular Technology) away from outside

interference. As to whether issue expansion leads to policy changes, that is the central question of this thesis.

The strategy of issue expansion and contraction closely relates to how specialist groups and generalist groups interact with each other. Specialisation and generalization have its origins in the debate of pluralism versus elitism. The debates started in the 1950s and 60s (Baumgartner (1986) citing Truman, 1951; Dahl, 1966; Hunter, 1963). Later, writers noted that "different forms of issue have different political processes." Regulatory, distributive, and redistributive issues each lead to a particular pattern of relationships, according to Lowi (1964). No matter what the area of issues, others later argued, certain types of groups are more likely to form and to be active than others (Olson, 1965). Policy systems therefore differ according not only to the contents of the policy but also to the presence, absence, strength, and distribution of interest groups (Walker, 1983a). The many and powerful groups that are necessary for the functioning of a pluralist system as described by Truman (1961) may exist in certain areas but not in others. In short, there are many flaws in the pluralist heaven that lead to a patchwork of different policy systems coexisting in different areas of the economy, in different issues, or in the same issue at different times.

Policymaking in NZ takes place in many different policy communities, ranging from the highly specialized to the general. Specialized groups receive just as much attention from scholars. These studies on specialist communities, which usually consist of experts controlling policies in their dedicated fields, have produced many works and result in the

many theories. Amongst them “iron-triangles”, “sub-government”, and “policy whirlpools” just to name a few.

Certain policies are made entirely within an ultraspecialized policy community, whilst others engage a bigger and wider-ranging group of actors. An example of the former is when technocrats within the Treasury make recommendations to Cabinet Ministers on issues ranging from government spending on health to whether or not the government should continue their student loan schemes. In both cases policies are made within a specialized community. These policies if adopted will become part of New Zealand’s general political agenda. Major issues like healthcare touch the lives of millions of Kiwis, whilst any changes to the student loan scheme may influence a student’s decision on whether to pursue and obtain tertiary qualifications. It is accepted that agenda-setting affects public debate and by extension influences policy outcomes with the electoral pressure forcing the government of the day to comply with the demands of the electorate. Habermas (1996) employs the term *legitimacy* to explain how liberal democracies depend on gaining citizen approval for policy positions. “If a political interest group can gain recognition for the position it holds on a public issue like the use of genetic engineering technologies, then it may succeed in legitimating the use of that power. But to what degree does this hold true? Current scholarly works have focused on the presupposition that policy outcomes happen in the context of agenda setting. Perhaps there are other ways which better explain policy outcomes.

Interest Groups

Interest groups are crucial in pluralistic societies, typical of liberal Western democracies. These groups, typically political in nature are organized groups representing views of those who share the similar view points. According to Bentley (1993), notwithstanding their activities, the sheer fact that interest groups exist creates pressure on government. There are two types of interest groups, which Gais and Walker (1984) describe as inside, characteristic of lobby groups traditionally having access to the corridors of power, designed to convince government officials to adopt certain policies, and outside groups, which seek to influence policy from without by building support within the general public for a new set of values that may be manifested in policy. They claim that the factors influencing a group's status are organizational resources of a group; the character of a group's membership and sources of financial support. Moreover there are several types of interaction between the government and the interest groups. On this Mulgan (2004) elaborates that there are several types of interest groups: laissez-faire pluralist system, where interest groups operate in an open market, competing against one another to gain benefits from and influence the government or corporatist system, in which groups are integrated into the system and are seen as part of the state.

The interest groups within the GE-Free coalition as will be shown in chapter 4, belong to the laissez-faire model. As outsiders they are kept out of the system, whilst the pro-GE agribusiness lobby groups operate along the corporatist line. These groups play a large part in the expansion and contraction of GE/GM and nanotechnology. As will be discussed, the interest groups (in GE debate) studied in this thesis are primarily

"outsider" groups, especially those adopting the GE-Free position as they seek to expand the number of participants in their efforts to generalize the issue beyond the control of specialists. On the other hand the pro-GE groups seek to restrict the number of participants by concentrating on the technical aspects of the technology. The Nano players on the other hand consist of "insiders" within the industry mostly involved in research and are active participants in government policymaking. Their input by way of providing expert opinions with regards to field of research makes them 'insiders'.

Thesis Outline

This section outlines the structure for the rest of the thesis and briefly introduces the contents of the remaining chapters. Chapter 2 examines the theories of agenda setting and veto players to provide an explanation for the differing policy outcomes. In essence, I examine the prevailing literature pertaining to the relationship between agenda setting (in terms of issue contraction and expansion) and change in government policies by reviewing the works of E. E. Schattschneider and Frank Baumgartner. The result of agenda setting (in the media) is that the generalization and specialization will take place affecting the policymaking process, the former increases the number of relevant players in a debate causing the policymaking to get beyond the control of the bureaucratic circle thus altering the outcome of the policy; whilst the latter ensures the policymaking process remain under technocratic control through the exclusion of new players. Additionally, I review the Veto Player Theory as an alternative theory on policy changes its effects on policy outcomes. Discussing the ramifications as well as the impact it has on agenda setting theory.

Chapter 3 outlines the conceptual definitions and explains the operationalisation of the variables with details on data extraction and method for this thesis. It sets out the methodology so that replication for future research is possible. In addition, it sets out a series of hypotheses using the theoretical frameworks set out in the previous chapter.

Chapter 4 implements a nominal statistical approach as described in the previous chapter to examine the policymaking process. Essentially I will look at the data of the case studies and results in the form of policy outcomes to derive a conclusion with regards to the theories' ability to explain my case studies. I describe in detail the relationships between various players. I will also elaborate on the strategies employed by various players and policymakers, using issues expansion and contraction to analyze the agenda setting process. I then use Veto Player Theory (on policymaking in New Zealand) to address the inadequacy of agenda setting theory in explaining the policy outcomes of GM.

Chapter 5 summarizes the results of the preceding chapters and discusses the implication of the findings and concludes the analysis, reviewing the new and fascinating relationships between the two theories.

CHAPTER 2

Literature Review and Theoretical Framework

A theoretical framework is constructed in this chapter to help structure the various arguments from the agenda setting literature. In addition, this chapter will also assess the theoretical underpinnings of Veto Player Theory and its effects on the policy making process. The frameworks are then used to formulate several hypotheses to explain agenda setting and veto player theory in the context of GM legislative change in New Zealand.

Theories of Agenda-setting

Agenda setting theory originates from communication studies and focuses on the mass media's influence on setting political agenda. The phrase "agenda-setting" was coined in an influential 1972 article by McCombs and Shaw in which they found through content analysis of a local election, a high correlation between media agenda and the public agenda. In this way, they show that it is media agenda that influences the political agenda.

Agenda setting is about allocating priorities to alternative policy issues. The media agenda, that is, policy rankings by importance in the media, influences both the public agenda (rankings in opinion surveys, commonly known as public perception) and the policy agenda (policy rankings on government agenda), with the latter having an effect on government policy stability. Thus, there are two strands of literature. With the former

focusing on the media's effects on public perception; and the latter focusing on the relationship between agenda setting and policy changes.

Dynamics of Media Focus and Public Attention

Politics and the media are two inseparable elements ensnared in a symbiotic relationship. They feed on each other, in the process creating a self-perpetuating cycle in which politics and news media thrive. In multi-party liberal democracies such as New Zealand's, where policy discourse and debates are multiple and complicated, a complete and time-consuming examination of the merits of a policy is considered impractical. This is when agenda setting comes into play. As Baumgartner and Jones (1993:105) write, "studies of media coverage of complex events stress the role of symbol and metaphor. By portraying issues in particular ways, policy entrepreneurs attempt to take advantage of the routines of journalists in order to move their issues into more receptive venues." On the partial nature of the media, Baumgartner and Jones (1993:104) claim that "media attention tends to focus for some periods of time on the positives associated with an issue, but later may shift to consider almost exclusively the negatives." Furthermore, "the period during which both positives and negatives are considered simultaneously may be very short… In most cases, attention is focused on one side of the issue: either a wave of enthusiasm or a tide of fear" (1993:104). This follows on Nelkin's (1987:9) comment that policy entrepreneurs in their attempts to frame issues in particular ways have a tendency to behave in the herd mentality, as "…Most articles on a given subject focus on the same issues, use the same sources of information, and interpret the material in similar terms."

Herbert Simon (1985: 293-304) explains that this is the natural consequence of the limitation of human cognition. As he claims, "People are endowed with very long-term memories, but with very narrow capacities for simultaneous attention to different information…Of all things we know, or can see or hear around us, only a tiny fraction influences our behavior over any short interval of time" (Simon 1985:302). He goes on to state that the "bottleneck of attention" is a characteristic of the political system, which is symptomatic of individuals' ability to follow and process only a handful of topics. In support of this view, McCombs writes that "the public agenda seems to be an oligopoly limited to approximately a half-dozen major concerns at any particular moment" (1981:122 cited in Baumgartner and Jones, 1993:105). Leading Baumgartner and Jones (Ibid) to conclude that "Whatever the causes of this inability to consider many alternatives at a single time, it seems to be an important feature of both how individuals think and how the political system responds to problems."

Another school of thought, based on Hilgartner and Bosk's (1988: 53-78) model is one of competing social problems vying for space on the restricted public agenda space. For them, "public attention is a scarce resource, and the gate keeping processes of the media are key determinant of which issue will receive public attention and which will not." They introduce the concept of "carrying capacity" whereby different venues have different capacity to cover the issues.[2] Sometimes these venues move in harmony: as one pays more attention to a given issue, others gravitate towards the same issue.

> Each institution is populated by a community of operatives who scrutinize the activities of their counterparts in other organizations and arenas. Journalists read

[2] For example, newspapers are constrained by the number of pages they print, by the number of reporters and editors they employ and other resource constraints.

> each other's work in a constant search for story ideas. Television producers scan the symbolic landscape for fresh subjects for dramas. Legislators seek ideas from neighboring states. Activists "network" to gather information, maintain contacts, and spread ideas… Nor is this attention only passive and reactive. Indeed, an active attempt to influence events in other arenas is the rule, rather than the exception. Congressional aides, for example routinely attempt to generate and shape media coverage of their employer's activities. Public opinion polls and news coverage are carefully monitored, and the politician's selection and presentation of issues are heavily influenced by considerations of what will get good press. (Hilgartner and Bosk, 1988:67)

Similarly, evidence suggests that the attention and language used by the media are at least partially determined by those who have an interest in promulgating a particular image of a public issue. Although in their studies, Schoenfeld, Meier and Griffin (1979) find that the language used to describe environmental news reflected the language used by environmental interest groups. They note that as environmentalism grows in the public consciousness in the 60s and 70s, media outlets adopted the terms and outlook of those groups active in environmental issues. Thus, giving credence to a perspective that had not been taken seriously previously in the political system.

Media coverage of political issues has two dimensions—attention and tone. Changes in the tone of issues matter little if attention is low. Mazur (1981), Freudenberg and Rosa (1984) present evidence that, at least for technical issues, any increases in media coverage tend to cause declines in public support for the policy. As attention increases (regardless of whether positive or negative), public acceptance declines.

To illustrate this, Spencer Weart (1988) observes the changing image of nuclear power in the twentieth century from solidly positive to overwhelmingly negative. He remarks that

shift is not based so much on changing realities as on changing images. Weart points to news coverage surrounding the use of radium as a medicine in the early 1900s: “in the absence of knowledge, fantasy had free play” (1988:37, cited in Baumgartner and Jones 1993:66). Opponents and proponents made incredible claims for both the curative powers and the dangers of this new “potion” and “rational argument became less and less prominent in the controversy” (Ibid). Inglehart (1984) documents myths and misinformation on nuclear power among the mass public of ten Western nations, and suggests that misinformation and sensationalism in the mass media are partially responsible for a lack of factual basis in mass responses to the technology.

Vogel (1989: 214-15) tells of the frustrations experienced by business leaders with biased and sensational nature of media coverage of business news. Equally, Cohen complains of the media’s tendency to give the impression that there is disagreement on complex issues by paying undeserved attention to a minority of “renegade scientists” that disagree with the overriding view of the majority to promote the “scare angle” (1981:71, in Baumgartner and Jones: 119). This tendency to focus on disagreement and controversy adds Mazur (1981:109), gives the impression that safety of the technology must be imperiled. “When media coverage of a controversy increases, public opposition to the technology in question (as measured by opinion polls) increases; when media coverage wanes, public opposition falls off.” While the first strand mentioned above looks at the effects on public perception, the following examines the impact agenda setting has on policy-making.

Stability of a democratic system is often thought of as democracy at equilibrium. However, this situation is rarely the norm. In fact, Riker (1986:22) disputes this notion claiming otherwise: “Disequilibrium, or the potential that the status quo could be upset, is the characteristic feature of politics.” Stability is dependent in the dimensions of conflict: on the number of actors taking part in the decision, the number of alternatives considered at the same time etc. Given the number of variables, policy process can be inherently unstable. In such a system, strategic actors can influence public opinions and their support to attain their goals. I will discuss these strategies below.

Agenda Setting Strategies: Expansion and Contraction of Issues

Policymakers redefine political issues to attract or repel potential participants (Baumgartner, 1989). Therefore, issues redefinition is the primary tool by which actors rely on to expand or contract a conflict. Edelman notes that political events “largely creations of the language used to described them” (1971: 65 cited in Baumgartner 1983: 10). Heristhetics as Riker (1986: ix) puts it, is the efforts of strategic policymakers to redefine a situation to their advantage by using “language to manipulate other people.” Thus, Baumgartner (1989: 10) finds that “by formulating a debate, or by convincing others that two issues somehow are related, the heristhetic policymaker can transform defeat into victory.”

This follows Kingdon’s (1984) earlier study focused on how policy entrepreneurs link problems and solutions by redefining one of them so that other people are convinced that they are related. He argues that “A problem captures the attention of important people,

and participants hook their proposals onto it, arguing that they represent solutions, even though advocacy of these proposals originally had nothing to do with the new problem" (Kingdon, 1984:191, in Baumgartner 1983:16). John Kingdon (1986), a developer of the multiple streams model, views the mass media as one of the multiple streams feeding in to agency policy-makers as they set their agendas. He explicitly incorporated elements of agenda setting theory and noted that media influence was correlated with public attention to issues. Multiple stream theory, however, gives much more attention to multiple determinants of policy agenda, including factors such as cost, interest group power, and the power of political parties and actors.

According to scholars, contractors have the tendencies of using the most arcane and incomprehensible technical vocabulary possible so that non-experts cannot understand the issues being discussed. Expanders in general, tend to portray the issue as broad and political so that a broader range of actors can take part.

There are multiple models of issue expansion in agenda setting. Baumgartner and Jones (1993) discusses two types of agenda access in US politics. One is related to Downsian's "enthusiasm" model, with the other to Schattschneider's "criticism and opposition" model. They explain,

> When issues reach the public agenda on a wave of popular enthusiasm, conditions are at their best for the construction of a new policy subsystem. Political leaders react to feelings of enthusiasm by doing whatever they can to provide support for specialists who convince them that they have the power to solve major national problems. Leaders want to be seen as facilitating, not hindering, the work of experts when the public believes that something good may come of it…When an issue emerges on the national agenda in an atmosphere of criticism, on the other hand, the policy implications are opposite: conditions are ripe for the destruction

> or dilution of any policy subsystem that may have been created in the past. Criticism of experts encourages political leaders to pay attention to the details of policymaking within specialized policy communities, whereas enthusiasm leads political leaders to delegate power to experts

E. E. Schattschneider's model

Schattschneider (1960) suggests the concept of conflict expansion claims that losers in a policy debate have the motive to change the roster of participants by appealing to those not currently involved in the debate. It is an expansion which seeks potential allies. The logic goes that if losing parties can appeal to the right group of potential participants, they may be able to change their losing position into a winning one, as an increasing number of people get involved in the debate on their side. Hence the most effective strategy of politics is to enlarge or limit the scope of debate to include or exclude those groups whom one can predict will be for or against one's position. He notes the importance of group efforts in issue expansion, as they increase the likelihood of more influential and powerful actors entering the conflict on the side of policy change. Such course of action entails criticism of existing status quo. To put this into context, Baumgartner and Jones' study of three major issues show that "Schattschneider mobilization process can cause powerful policy subsystem to be transformed either into conflictual issue networks (in the case of smoking and pesticides) or into weak vestiges of their former selves (as in the case of nuclear power)" (1993:101). The more ambiguously an issue can be defined, the more emotional and the less technical it can be made to appear, the greater the chances that the issue can be expanded to include the general public. As Charles O. Jones (1979: 99-119) comments on the expansion of conflict over energy policy in the aftermath of the Arab oil embargo: "Expansion is up, out, and over—up in the public and institutional

hierarchies…, out to groups that declared an interest in energy policies…; and over to decision making processes in other groups of nations… [This has the effect of] forcing resource-based subsystem participants into considering each other."

Downsian model

In *Up and Down with Ecology,* Anthony Downs (1972) claims that public attention to political issues characteristically matches the cycle of a pattern. According to the Downsian model, a preproblem stage is typically described as low public attention. After that comes a state of alarmed discovery and euphoria, generating much attention, which is then followed by a realization of the costs of solving the problem and a gradual decline in public interest. Others suggest that this is a decidedly pessimistic view of the agenda setting process (Baumgartner and Jones, 1993). Furthermore, in accordance with Downs' somewhat cynical outlook, hitting the agenda is of little policy relevance as public and national leaders are likely soon to reach the conclusion that "action is futile, that costs of solving the problem are too high, or that some other problem requires their attention even more urgently" (Downs, 1972: 87). In addition, this cycle applies principally to unexciting problems that directly affect a minority of the population (Ibid). This implies a never-ending series of alarmed discoveries during which the public suddenly focuses on an issue, but after which serious action may never take place. Attention simply fades as the difficulties of action become clear or as the old agenda is being replaced by a new crisis. Peters and Hogwood (1985: 240) chart variations in governmental attention to important problems over time, they found that "almost all policy areas have at least one clear peak decade of organizational activity". These periods generally coincided with

Gallup Poll data showing public concern with the same problem that is the "alarmed discovery" phase. However, they add that public attention to a given issue may fade, but even a short-lived spurt of interest may leave an institutional legacy. These are structural legacies such as the creation of new government agencies.[3] Similarly, Howlett (1991) tested Downs by comparing longitudinal data on media content with data on government activity (Hansard and committee report of the House of Commons) and did not find adequate evidence to support his interpretation of Downs.[4] Although critics claim that at best Howlett's test is only tangentially related to Downs' original hypotheses, as it does not address the crux of Downs' model—the idea that attention to issue rises suddenly and is followed by a slow decline (Soroka, 1999).

It is noted that when comparisons are made Downsian model leads to the creation of institution long after the public interests have waned, whilst Schattsschneider-type mobilization leads to the destruction of existing policies and structure.

Policy Monopolies and Issue Contraction

The conventional wisdom goes that interest groups and policymaking experts have a primary interest in establishing and maintaining policy monopoly.[5] Logically, experts are purported to spend much time and effort on excluding outsiders from participating by claiming that outsiders are not qualified to partake in the decision making process given

[3] For example, in the US, the government established the Department of Homeland Security in the aftermath of the Sept. 11 terrorist attacks. These agencies are likely remain after the public's preoccupation with the threat of terrorism in the US is long gone.

[4] If Downs is correct, says Howlett, issue salience for the media should lead to issue salience for policymakers. Using cross-correlation functions (used to help identify causal links between two time-series), Howlett does not find adequate evidence to support his interpretation of Downs.

[5] Policy monopoly is defined as a monopoly on political understandings concerning the policy of interest, and an institutional arrangement that reinforces that understanding. See pg 6, Baumgartner and Jones 1993.

their lack of necessary expertise in a given field. According to Baumgartner and Jones (1993) policy monopolies possess two important characteristics: 1) A definable institutional structure which is responsible for policymaking and that structure limits access to the policy process. 2) A powerful supporting idea associated with the institution. They claim that "these buttressing policy ideas are generally connected to core political values which can be communicated directly and simply through image and rhetoric" (Baumgartner and Jones, 1993: 7). Adding that "serious political actors then are unable to contest or undermine as such ideas more often than not invoke symbols like progress, scientific progress or economic development and growth" (Ibid).

"Policymakers explain issues in different ways depending on the audience they are hoping to draw into the conflict" claims Baumgartner. For technocrats and experts eager to retain control over an issue, it is crucial that they present a united front before the legislature (Kingdon, 1973: 243-45). Inversely, Baumgartner (1986:10) states that "political conflicts result in greater participation and increases the chances that political generalists, rather than only specialist, will become involved." Furthermore there are several types of policies; each entails different levels of conflict. Redistributive policies (which often involve resource reallocation) claim Baumgartner appear to be the most conflictual thus attract more participants. As Schattschneider (1960:1) states, "nothing attracts a crowd as quickly as a fight." Distributive polices on the other hand attract less participants because they tend to be consensual.

Commenting on issue contraction, Cobb and Elder (1983:45) find that, "Perhaps the most effective way to restrict or to localize the scope of an issue is to redefine it technically so that most people will not understand it."

> The symbols used to define the stakes in a conflict define who has reason to be involved. Groups that find themselves disadvantaged by the existing mobilization of forces in a conflict will seek to expand the conflict or otherwise alter its biases by redefining what is at stake…While groups disadvantaged by a particular definition of a conflict will seek to redefine the issues involved by introducing new symbols sao as to attract additional support, those advantaged in the conflict will try to prevent its redefinition. They will do this by exploiting their own symbolic resources to lend legitimacy to the existing definition and to undermine the credibility of those seeking redefinition. Professional groups, for example, may exploit their special status to maintain control over an issue by insisting that it is a "technical" or a "professional' matter that should be left to the "expert."
>
> (Elder and Cobb, 1983:129-30, in Baumgartner p 11)

Often, monopoly is broken by disagreement from within a closed subsystem. John Campbell (1988) in *Collapse of an Industry: Nuclear Power and the Contradictions of US Policy* demonstrates that political conflict originated from internal (subsystem) dissent as technical staff (from Atomic Energy Commission) began to doubt the agency's safety decision over designs for bigger nuclear reactors. Campbell terms this "internal legitimacy crisis". With appeals from within the community of nuclear power experts, the monopoly of decision-making began to weaken.[6] It opened the floodgates to external opposition. Whilst Baumgartner and Jones (1993) state that greater attention to a problem usually leads to more negative assessment of current policy, thereby creating pressure on the dominant policy community or policy monopoly to open up policy making and accept

[6] The conflict expanded outwards as scientist in the agency leaked information to the Union of Concerned Scientists and other anti-nuclear groups. This gave external opponents the credibility they needed to attack the system. Campbell notes that an external legitimacy crisis developed by 1972 when opponents in the environmental and anti-nuclear movement contested all license hearings. This onslaught is followed by Ralph Nader and environmental groups filling law suit based on the safety concers. See Campbell 1988:63. This marks the transformation of an internal legitimacy crisis into an external one.

change, regardless of efforts by dominant members of the policy community to contain conflict and deflect the attention from the problem. This increased negative attention in turn, expands attention to issues and can lead to more claims of policy failure and more active search for solutions, leading to a greater chance of policy change.

Baumgartner in his book ***In Conflict and Rhetoric: In French Policymaking*** (1989) traces the French education policy reforms based on thirty case studies performed by the Ministry of National Education. Baumgartner's central thesis is his claim that "there is only a moderate relationship between the objective scope of an issue and the level of participation that it stimulates" (1989:42). Previously, Schattschneider (1960) wrote that the scope of a debate is the most important determinant of its outcome. This factor trumps others because according to him, while factors such as the number of participants in the in a legislature (members of parliament) is fixed, there is no fixed roster of participants in the broader policy process. Thus the possibility of expansion because of the scope is enormous.

> The most important strategy of politics is concerned with the scope of conflict. Imagine what might happen if there were a hundred times as many spectators on the fringes of the conflict who sympathized with Able rather than Bart. Able would have a strong motive for trying to spread the conflict while Bart would have an overwhelming interest in keeping it private. It follows that conflicts are frequently won or lost by the success that the contestants have in getting the audience involved in the fight or in excluding it, as the case may be.
>
> (Schattschneider, 1960:4, cited in Baumgartner 1986:8)

However, to Baumgartner it is the intensity (degree) of the conflict that matters more. Even though a conflict itself is often unrelated to the content of policies, as the source of conflict can originate from "categorical, institutional, and jurisdictional rivalries." (1993: 94). Only three of the thirty cases came to dominance in the media: these are the most

conflictual ones. In the other ten cases, where conflict was minimal, no effort on expansion was attempted. Like the others, he claims that questions that take a broader political implication are more likely to rise higher in the nation's political consciousness, whereas ostensibly routine technical matters are more likely to receive the attention of experts in that particular field of knowledge. Thus, conflict leads to expansion of the issue. Thomas Birkland (1998:56) summarizes on the relationship between group mobilization (as a result of enlarging the scope) and issue expansion.

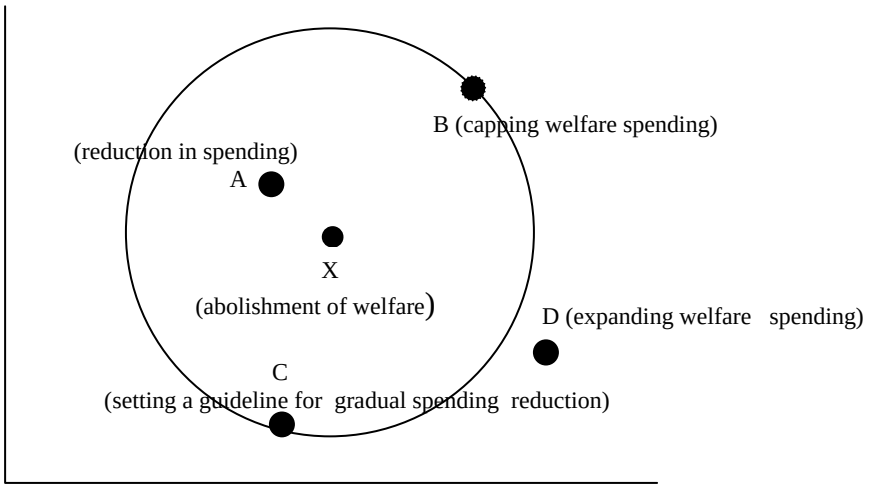
> Focusing events can lead interest groups, government leaders, policy entrepreneurs, the news media, or members of the public to identify new problems, or to pay greater attention to existing but dormant problems, potentially leading to a search for solutions in the wake of apparent policy failure. At the heart of this activity is the constant search by the interest groups for opportunities to advocate policy change based as much on advocacy opportunities as on technically superior analysis (Kingdon 1995; Majone 1989). Claims of policy failures are therefore made by pro-change groups in an attempt to expand an issue to a broader audience. These event-triggered issue expansion efforts should be clearly evident in post-event policy making effort should be clearly evident in post-event policy making, as groups seek to move their preferred ideas from the systemic agendas (the list of possible policy ideas) to the institutional agenda (the list of possible policies up for active consideration).

Policy change and Veto Player Theory

By definition "veto players" are entities whose agreements are required for policy changes to take place. In *Veto Player: How Political Institutions Work* (2002), political scientist George Tsebelis applies spatial modeling to explain a multitude of political phenomena. According to Tsebelis, all relevant actors have the right to "veto" because any change away from the status quo necessitates their acceptance. Since he claims that veto players possess the power to prevent change, for a proposal for change to succeed, it requires obtaining unanimous agreement of all "veto" players. Thus, by identifying all the preferences of the actors, it is possible to get the win-set of the status quo. The win-set is

the areas where the actors have an overlapping common stance or interest. It is the spatial locations of their ideal points, as well as status quo. Thus, it can be defined as an array of politically acceptable outcomes.

Figure 2.1 A libertarian party's ideal policy points on welfare spending



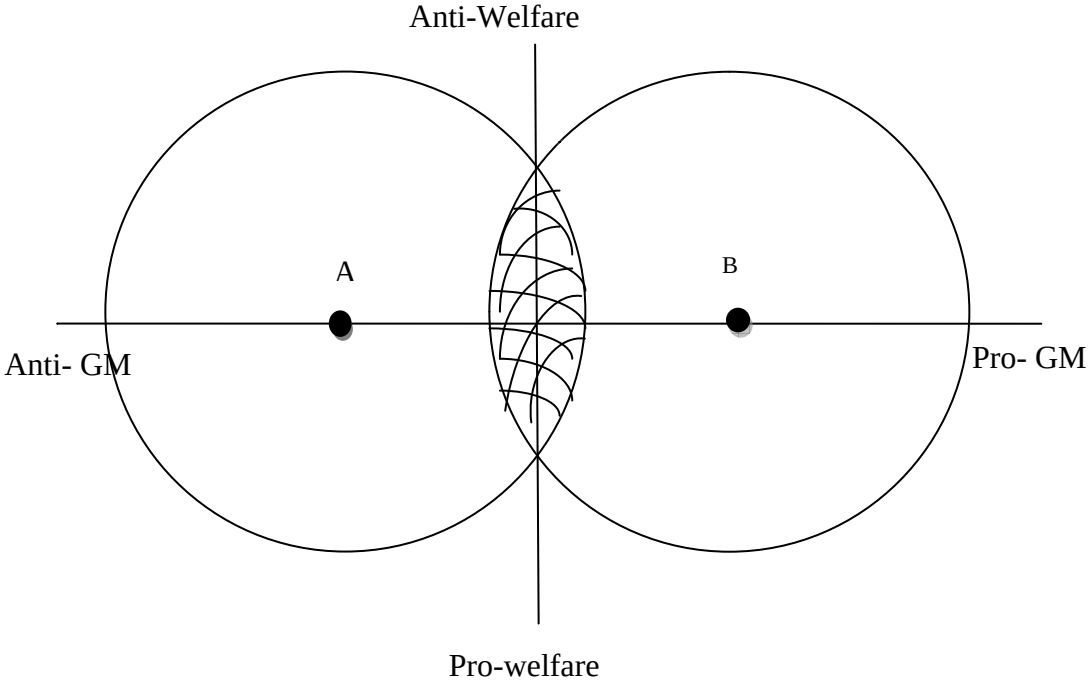
Source: Author's own

The Veto players as in the case of this thesis are generated by the political game, they are called *partisan* veto players. In the case of legislation on genetic engineering, only the NZ Green Party can be considered a veto player and not the other activists groups as only political parties with representation in Parliament are involved in the legislative process. Each individual veto player is represented here by his ideal point in an n-dimensional policy space. Figure 2.1 represents a two-dimensional policy space. Tsebelis assumes that each veto player has a circular indifference curve, that he is indifferent between alternatives that have the same distance from his ideal point. There are five points in the figure 2.1 represented by X, A, B, C, and D in different locations. According to him, the veto player is indifferent between points B and C, but he prefers A to either one of them as A is closer to the ideal policy which is represented by X. Thus point X represent the

abolishment of the welfare state for a right-wing libertarian party. Whilst point A represent the reduction in government spending, essentially a compromise on its ideal policy. The indifference curve goes through B and C. As such, according to this model, it is only possible to change a policy if the proposed new policy is within the circle. (i.e. if it is located between X and B/C radius. It signifies the movement along the policy spectrum acceptable to a party. The location of D means it is ideologically impossible for the veto player to agree to a shift in policy to D as it is outside of the circle.

Henceforth, Tsebelis' model is "transcendental" as it shifts from the traditional pair wise comparative method paradigm, employing traditional analysis such as the presidential versus parliamentary; or left versus right. In this way the author is able to accommodate variation between all institutions irrespective of observable difference, regardless of party systems, legislatures and executives.

Figure 2.2 The intersection of the two veto players and their common ideological sphere



Above, figure 2.2 depicts a scenario in which, regardless of the ideal policy, the whole area within the circle surrounding the ideal policy point represents a series of possible outcomes for each player. Where agreement from both players is prerequisite for policy change, the possible outcomes a.k.a. consensus ad idem; there can only be a limited number of policy outcomes as represented by the area in the intersection between the two circles (represented by the shaded oval). This is corroborated by Riker (1992) who in his study on upper and lower chambers in the legislature found that it is more difficult to attain two majorities in separate chambers over one policy than it is for a single chamber. In general the more similar the ideal policy points (i.e. the closer the circles are to each other) the greater the number of points in each circle that overlap; in comparison, two players coming from very different ends of the political spectrum with very conflicting ideal policy points have very few potentially mutually acceptable policy points. What are the implications of this in relation to policy stability and change? In essence the further apart ideologically the veto players are, the less likely for them to agree on a policy change.

In relation to the size of win-set, Tsebelis (2002) theorizes that the smaller the winset becomes, fewer policies exist that can replace the status quo, leading to greater policy stability. He makes three further claims: 1) as the number of veto players increases, policy stability (weakly) increases as well. It never becomes easier to make decisions as new veto players are added. 2) The veto players that are added to the unanimity core of existing veto players are absorbed and have little or no effect on policy stability. Such a rule is a key result because it allows us to focus on extreme veto players, ignoring those

that are centrally located. He claims that the final result holds that veto players A and B, and for any status quo, the A win-set is a subset of the B win-set if the ideal points of B are located inside the unanimity core of A. Accordingly, as the ideological distance among veto players grows, policy stability also increases. The significance of agenda setting declines as policy stability increases, on the same note, it increases as the agenda setter (player) moves towards the centre of the other veto players (Tsebelis, 2002:35-36). In short, the further apart or polarized the veto players are from each other the harder it is to change a policy irrespective of the agenda setting process. I intend to test this claim.

This theory allows us to "calculate" the likelihood and predict the probable direction of policy change "on the basis of information about the institutionalized process of decision making by governing bodies." As a result, according to him "veto player theory can make accurate predictions about policy outcomes" (Tsebelis, 2002: 284), because "veto players theory provides the contours of the possible outcomes on the basis of minimal assumptions" (Ibid: 285). What's more, veto players' strength of autonomy may influence its effectiveness in influencing policy. Although Veto Players is not immune to outside pressure and can be subject to other influence. Alex Tan (2009: 201-212) in his research on the politics of financial reform in Taiwan notes that "When the state structure is closed and relatively insulated from societal pressure, the autonomous state actor's win-set is only constrained by its own ideology and strategy to maintain political stability." He adds, "As the state structure is opened up to more societal participation, the state actor's win-set is now constrained and influenced by the number of actors involved as well as their preferences and influences."

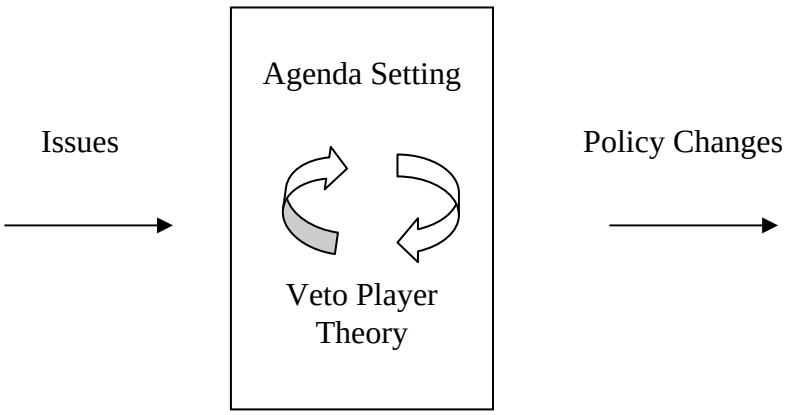
Moreover, there are several types of Veto Players. Tsebelis makes a distinction between individuals and collective veto players. He explains:

> Suppose that as a result of extraordinary political circumstance the single-party government is replaced by a two-party government like the coalition of the right and left in Greece in 1989, or Liberal-Labour pact in the UK. Now no law will be enacted unless both government partners agree on it. In other words, during this period Greece or the United Kingdom will be transformed into a two-veto players political system. More generally, the dynamics of a parliamentary system require the agreement of one (Westminster system) or more (coalition government) parties for the modification of status quo. Each of these parites will decide by a majority of their parliamentary group; consequently, each one of these parties is a (collective) veto player.

Two contending theories: which one matters?

Policy change according to Baumgartner is predicated by issue expansion and contraction as influenced by the agenda setting process. He is certainly right to suggest that these two are interrelated but what is not clear is the exact relationship between agenda setting and policy change (outcomes). Veto Player Theory contends that Veto Players plays a decisive and fundamental role, that VPs are essential to policy change. Any change in policy will only come from mutual agreements between the parties. Both theories are sound the question is which one best explains policy change in the NZ context?

Figure 2.3 Two contending theories



Prima facie Baumgartner puts forward that the notion of changing policy outcomes by using the mechanism of debate expansion through generalization and debate contraction through specialization. He does not talk about increasing and decreasing the number of actors. However, at a deeper level generalization/expansion inevitably leads to an increase in the number of participants in a debate whilst specialization leads to a drop in the number of actors or at least prevents the number of actors involved from growing. Yet, Veto Player Theory strictly focuses on the number of actors in explaining the policy outcomes, maintaining that the more the number of players the harder it is for change to take place.

This thesis attempts to expand on the theories and themes mentioned above. I incorporate Tsebelis' *Veto Player* concept into my agenda setting framework as a means of evaluating the extent to which Veto Player Theory affects agenda setting in policymaking. Thereby, I am going to evaluate how the two theories relate to one another. Are they compatible, conflicting, or overlapping? Does Veto Player Theory supersede agenda setting's effects on policy making process or is there a "two-track" system coexisting? These are the questions which I seek to answer. This thesis makes a contribution by taking on this challenge. In short, I am extending current agenda setting literature by accounting for the effects of Veto Player Theory to ascertain which one of the two theories better explains and help us understand the NZ's political situation. To answer some of these questions first I set about to test the hypothesized relationship between agenda setting and policy change.

Hypotheses

Hypothesis testing is the only way that theories can be evaluated. As Ernest Gellner (1985:68) declares, “Our theories can touch the world at those points at which they risk falsification though non-congruence of facts.” Based on the theoretical framework depicted thus far, several propositions can be developed. First, the theoretical framework is built on the core idea that negative agenda setting has a negative influence on public support which in turn affects government policy change. That increased and negative media coverage as a result of issue expansion leads to a change in government policy from existing policy to accommodate prevailing public sentiment due to the pressures presented by mechanics of a competitive democracy. This is the consensus based on theoretical discussion on agenda setting’s effects on policy change earlier in this chapter.

Therefore

Model for Hypothesis 1

Policy ⟶ Issue Expansion ⟶ Policy Change

Hypothesis 1: *I contend that the negative media coverage leads to a change in government policy*

Model for Hypothesis 1.2

Policy ⟶ Issue Contraction ⟶ No Policy Change

Hypothesis 1.2: Whereas overall positive media coverage for nanotechnology is associated with unchanged government policy towards that technology

According to the Veto Player Theory, the higher the number of players required for policy change the less likely it is for policy change to occur. If there are many partisan veto players then preexisting policies will remain unchanged.

Therefore

Hypothesis 2: I contend that the number of Veto Players changes the effect on legislative outcome.

In other words, the higher the number of Veto Players with differing ideological standpoint, the less change there will be in the policy.

CHAPTER 3

Concept, Research Design and Methodology

Introduction

This thesis is an exploratory analysis of why some issues are more prominent than others. Using agenda setting and Veto Player Theory, it seeks to explain the differences in policymaking process of genetic engineering and nanotechnology. It seeks to examine empirical patterns and relationship between agenda setting in the media and the policy outcomes. In addition, I will also examine and analyze the interaction between the political players (using Veto Player Theory) as a mitigating factor and whether it has an effect on the policy outcomes. In short, I will look at the merging of these two literatures: agenda setting and Veto Player Theory. The research design in this thesis uses publicly available secondary data to test the agenda-setting hypotheses. Given the budgetary and time constraints, this is an ideal choice of research design.

Chapter Two reviewed the literature about the effects of agenda setting on policy formulation and provided a series of hypotheses. The hypotheses reflect the general relationship between agenda setting and policy outcomes. Moreover, I introduced the idea of Veto Player Theory as proposed by Tsebelis, discussing its implications on government policy making.

This chapter explains the conceptual definitions of the ideas discussed in the previous chapter. In addition, it elaborates on how the hypotheses are operationalised and the

method in which the data is derived. This will include both quantitative and qualitative methodology.

Method

The aim of this research is to find patterns within quantitative data generated using the method described above to justify causal inferences, testing the hypothesis mentioned in the previous chapter. My objective is, to quote Jackman (1985:166), “not to generate comprehensive descriptions but rather to develop probabilistic generalizations about causal relationships (or lack thereof) between variables.” However, as is with most social sciences, even with strong statistical evidence causation cannot be empirically demonstrated.

In addition to employing a quantitative research method to explore evidential relationships between agenda setting indicators and policy-making, I will also use a comparative method-- the most-similar-system (MSS) design-- in this study. Traditionally, MSS research design is used for comparing similar political systems by focusing on significant differences. I choose to use this system for several reasons. This framework enables me to make comparisons between similar topics by allowing for the xamination of their differences. This type of design is a “maximum” strategy. When used for cross-country analysis, it is predicted that if some important differences are found among these otherwise similar countries, then the number of factors attributable to these differences will be sufficiently small to warrant explanation in terms of those differences alone.

As Przeworski and Teune (1970) explain, if such a difference is found among the systems studied, the following theoretical implications follow: (1) the factors that are common to the systems are irrelevant in determining the phenomenon being explained since different patterns of behavior are observed among systems (or topics) sharing these factors. (2) Any set of variables that differentiates these topics (systems) in a manner corresponding to the observed differences of outcomes (or behaviors) can be considered as explaining these patterns of outcomes (behavior). The second implication is especially significant.

For the number of differences among similar countries (or in this case scientific topics) is limited, it will almost invariably be sufficiently large to "overdetermine" the dependent phenomenon. In summary, the different outcomes (dependent variables) are brought about by differences between the cases (independent variables). Thus, explaining the differences. In this case I shall compare the agenda setting for genetic engineering and nanotechnology and their policy outcomes using methods described below. The variation in the data sample between GE and nanotechnology coverage allows for the exploration of hypotheses about the relationships between the independent variable and their dependent variables. As part of a comparative study this thesis employs a 2-case-studies method which allows for combined descriptive, exploratory, and explanatory approaches (Yin, 2003). Furthermore, the advantage of case studies is that it can contribute to theory development (Cutler, 2004).

Conceptual Definition of Agenda Setting

The first step in defining a concept is to explain its empirical meaning. According to Pollock (2009:8) a conceptual definition "clearly defines the concept's measurable properties and specifies the unit of analysis (people, nations, states) to which the concept applies." There are two concepts that my quantitative research will examine. These concepts are issue expansion and issue contraction. These concepts of agenda setting for the purposes of this study is defined as the extent to which media (as defined below) exhibit the characteristic of supporting either government policy towards genetic engineering and nanotechnology or the research and development in the science itself.

Operationalisation

Qualitative Research

Dependent Variable

For my dependent variable, I look at changes in government legislation. It entails employing qualitative/discursive analysis on relevant government documents and statements. Data are derived from the sources listed below:

1) Government documents
    - The Report by the Royal Commission on genetic engineering (2001)
    - The Report "Nanoscience and Nanotechnologies- Roadmaps For Science," by the Ministry of Research Science and Technology.
    - A nanotechnology Initiative for New Zealand (2006)
2) Parliamentary sources
    - Hansards Parliamentary Debates

- Speeches/Statements
- News and media reports

The qualitative part of this research aims to strengthen the quantitative findings by adding depth to the understanding of data. In addition to analyzing the results for policy changes, Fairclough's (1992) method of critical discourse are used to conduct an analysis of a GE campaign and (or rather the lack of) a nanotechnology campaign drawing from articles, newsletters, press releases, and websites produced by the groups. These secondary sources provide the basis for identifying and illustrating campaigns of various policy players as well as their positions on GE and NMT. Using document analysis brings a myriad of viewpoints to the study, various sources, such as newspaper clippings, internet news sites, magazine and any sources of information containing relevant information, and provides for a more complete picture and depth to the understanding of the data pertaining to this study. Of particular mention is the analysis of the anti-GE coalition and pro-GE groups' actions to establish the underlying strategies of their respective campaigns.

Quantitative Research

By that definition quantification is only a crude approximation of 'degree' of a concept so as to enable simple statistical analysis to be done. The indicators used to represent the variables as mentioned in the theoretical framework in the previous chapter, are outlined below. Reliability may be assumed since the indicators are extracted from well-known and dependable sources. Validity demands correspondence between variables in the theoretical framework and the empirical indicator. Prima facie, all the measures in use here correspond to the variables in the theoretical framework. The method of codification

for the data is described so that replication is possible. Moreover, they can expect to provide similar results. The data is extracted from an open source as the NZ Herald website is accessible by all.

Independent Variable

To measure issue expansion and contraction for both GE/GM and nanotechnology I examine the press coverage for both topics. I thereby have two sets of data for examination. Both sets of data for the independent variables, namely *genetic engineering* and *nanotechnology* are collected from news articles obtained are available on nzherald.co.nz, the website of "the New Zealand Herald"- New Zealand's leading national print newspaper- which closely covers national political debates. The rationale for choosing "The Herald' is two-fold and self-explanatory as: 1) it has an expansive and more complete coverage of the national debates and political discourses on these two subjects vis-à-vis other smaller regional newspapers with its emphasis on national coverage and not as regionally focused. 2) It has the highest readership levels of all newspapers- therefore has the largest influence on the largest number of people.[7] In short, it accurately portrays the political debate in New Zealand especially the topics in this study; and holds the most influence over public opinion amongst all the newspapers. To prove my point, the NZ Herald dedicates an entire section to the coverage and discussion on GE/GMO's development in New Zealand.

[7] The New Zealand Herald average issue readership is 568,000 in New Zealand for the year 2009. In contrast the second-highest selling newspaper- Wellington-based The Dominion Post's overall readership is 247,000. This is followed by Christchurch-based The Press with 223,000 readers. See http://infonews.co.nz/news.cfm?l=1&t=138&id=43973

To obtain these articles I typed in the phrases genetic engineering and nanotechnology in the search box. And the search produces a list of all articles related to the phrase both in substance (related content) and literally (verbatim). As such these articles either contain matching words, related phrases, or they are deemed related to the topic by the newspaper. For that reason, not all articles on that list are included into the data as I exclude non-relevant articles. The online archive contains articles from the period of March 2001 until present for GE. As for nanotechnology coverage, the earliest archived article starts from June 2000 and continues through to the present. At the time of data collection it was mid August of 2009, ergo the nanotechnology articles in the data ends in the August 09 period. In addition, as is the case with GE, only articles I deemed relevant are included. The criteria for inclusion are:

1) Coverage and content of article has to be relevant to either topic[8]
2) Either coverage or content must be specific to either one or both topics (in which case the articles are included in both data sets)
3) And coverage must be substantive. Thus a mere mention of the phrase does not warrant the inclusion of the article if the focus is not solely or substantially on either subject.

Although ultimately this is a subjective exercise of value judgment, nevertheless I am consistent in my approach to ensure neutrality in order to obtain the best possible data.

[8] For instance, the technologies' effects on local population

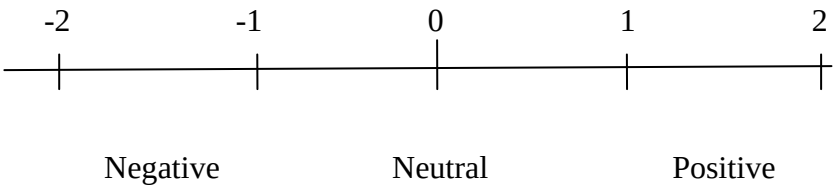
Although the archive for GE contains articles starting from March 2001 onwards, for the purposes of this study I limit the coverage to a three-year period. The data for GE contains a total of 446 GE articles covering the period from March 01 to end of Oct 03 when the GE moratorium lapsed. However, there are only 52 articles for nanotechnology covering the period from March 03 to the end of August 09. The reason for covering 6 years of nanotechnology as opposed to 3 years for GE is so that I can gain a sufficient number of articles to be included in the Nanodata- to use only 3 years of Nanodata would not generate a sufficient number of articles. The aim of this research is to find patterns within the quantitative data which justify causal inferences. "Our goal is not to generate comprehensive descriptions, but rather to develop probabilistic generalizations about causal relationships (or lack thereof) between variables (Jackman, 1985:166)." For this reason and given the circumstance surrounding data availability (for nanotechnology) I do not think the smaller n-size for Nanotech will affect the validity of the findings.

An initial search on genetic engineering and nanotechnology produced a complete list articles that contain the two phrases. Since not all the articles on the list are relevant or related to the two topics as is the case for GE, I have to exclude non-relevant articles.[9] This is only a small sample data set. This is by no means a comprehensive and complete study of issue expansion and contraction in the agenda setting in the NZ media for GE/GM and nanotechnology. For practical reasons, I did not include television news coverage; current affairs/documentary and radio coverage as sources for my data. To do so would require significantly more time and resources. Values are assigned to each

[9] Amongst the excluded articles are satirical articles and articles whose content are unrelated the topics in this study.

article using a five-point rating scale ranging from -2 for most negative to positive 2 for most positive coverage.

Table 3.1 Article rating scale



The values assigned to the articles are based on the degree of positive and negative coverage on the topic and the overall tone of the articles- whether it gives a positive or negative portrayal of the two technologies. In general, the value negative 2 and positive 2 indicates explicit coverage whilst negative 1 and positive 1 shows implicit negative or positive coverage, respectively. As a general rule, the articles that contain or express views that are critical of anti-GE forces (be it their views or actions) are classified as implicitly positive articles and assigned the value of 1. Inversely, articles questioning pro-GE views and its benefits are coded -1 (for being implicitly negative). The criteria taken into account to determine the value assigned to each article include:

1) The title of the article
2) The number of relevant positive, negative and neutral statements relating to the use/research of the respective technologies.[10]
3) The overall tone of the article indicating its position on the subject.

[10] For the purposes of this thesis statements are defined as personal/professional opinions indicating position towards the technology and factual/technical information that are likely to influence the readers into having a positive, negative, or neutral inclination towards either Genetic Engineering or nanotechnology. In addition, positive statements may include statements that critical of detractors (or their positions) of the technology.

The following are two example of the coding of an article concerning genetic engineering. The first is dated February 01, 2002.

Title: “Peers laud GE blowfly maker”

I identified one positive statement:

1) “A New Zealand scientist has been awarded a molecular biology medal for his research into genetically engineering Australian blowflies. The work is aimed at the release of millions of sterile male blowflies, which will mate in the wild but produce no offspring and potentially eradicate the pest.”

The following two statements are considered as neutral statements providing background facts in relation to the positive statement:

2) “He has used the basic knowledge to develop genetically engineered all-male populations of Australian sheep blowflies that would be ideal for sterile release programmes.”
3) “Flystruck lambs shed weight, and losses of up to 1 kg of wool and two-thirds of the value of the pelt total $9 an animal. Flystrike also has serious long-term consequences as buyers in key overseas markets become less tolerant of insecticides used to control the maggots. Overall flystrike is estimated to cost $37 million annually in lost production and control measures.”

In deciding the rating of the article, I take into account several factors described in the previous section. Firstly, I look at the title “Peers laud GE blowfly maker” which in this case renders a positive image to genetic engineering. This is followed by the

identification and categorization of three- 1 positive and 2 neutral- relevant statements all of which are listed above. Although there is only 1 positive statement, after taking into consideration all the factors including the overall explicit positive tone of the article, I decide to assign a positive 2 value on the rating scale to this article.

Below is a second example showing the coding process of an article with the overall value of -2.

Title: “GM strain taints mountains of stored corn across the US”

Date: 20 March 2001

The following are five negative statements

1) “More than 430 million bushels of corn in storage around the United States have been contaminated with an unapproved genetically modified variety, resulting in a huge recall of chips, flour and other foods. That figure greatly increases the estimate of the amount of US corn inadvertently mixed with StarLink genetically modified variety prohibited from human foods.”
2) “The 430 million-bushel estimate dwarfs the amount of corn reported earlier from the 2000 crop as containing StarLink - about 50 million bushels grown by farmers licensed to use it and 20 million bushels from neighbouring fields.”
3) “The genetically modified protein in StarLink corn, called Cry9C, was barred by US regulators for human use because of concerns it might cause allergic reactions such as skin rashes, runny noses and flu-like symptoms. The discovery of the corn in taco shells last September triggered a recall of more than 300 snack chips,

cornmeal and other US foods. The contamination occurred when farmers and grain elevators mixed StarLink with other corn varieties."

4) "Farmers in Illinois, Iowa and Nebraska have sued Aventis, claiming that the contaminated corn cost them export business and pulled down the overall price of US corn. Japan, the biggest importer of US corn, virtually halted its purchases for weeks and continues to test shipments in an effort to detect contamination. Wichtrich said Aventis had already spent "tens of millions of dollars" to resolve the StarLink contamination."
5) "Unfortunately, as of right now, the answer is no - there will never be an 'end' as long as there is a zero tolerance for Cry9C in food."

The following are two neutral statements

1) "The New Zealand Ministry of Health said none of the nearly 300 products identified as containing StarLink corn was available in this country."
2) "At the elevator level, we have already rerouted 94 million bushels of corn commingled with StarLink corn and know of an additional 343 million bushels in storage that will be rerouted in the months to come," said John Wichtrich, general manager for Aventis CropScience, a unit of the Franco-German pharmaceutical company."

Summary

Combining quantitative and qualitative methodology using an integrated approach, provides a more suitable and complete account and more accurate analysis of agenda setting on policy outcomes. Data on agenda setting provides an accurate assessment of its

effects on policy outcomes; whilst discursive analysis reinforces the quantitative findings by providing a contextual understanding of the setting. Also, the inclusion of two topics allows for a two case comparative study which contributes to theory development.

CHAPTER 4

Research Findings and Analysis

Introduction

The previous chapter outlined the hypothesis-testing framework for the research and discussed the comparative method. This empirical model is derived from a theory. In political science theoretical account normally contain a myriad of intervening variables. This chapter seeks to test the theory of agenda setting on government policy and examine to what degree agenda setting as defined previously affects the policy outcomes in New Zealand. The data will highlight some expected and unexpected relationships between the effects of agenda-setting in the media on government policy outcomes and some of the unexpected results. The significance of these relationships is explored by asking what effects Veto Players have on policymaking vis-à-vis agenda-setting in the media and what this means for the literature in general. Put simply, this thesis combines theoretical criteria and the context of the policymaking process in New Zealand: although context cannot be operationalised into an equation, it contributes to the further understanding of the research.

As this thesis is only exploratory in nature, the findings are not in any way meant to be definitive. Moreover, my hypothesis testing is only at a nominal level, thus I am unable to provide correlations and statistical relationship between the variables. The rest of the chapter will explain the veto players' effects as an alternative framework on explaining the likelihood of policy changes. Using the criterion set out by Tsebelis, I identify the

relevant veto players and examine their policy stance in relation to a change in status quo. My work borrows heavily from both sets of theories and combines them to form the basis of my thesis. As a part of the examination, I will also discuss how players consisting of a coalition of environmental interest groups and political parties (veto players) campaign to increase public awareness and participation, manipulate public opinion, through issue redefinition and expansion to influence government policy surrounding genetic engineering.

Hypothesis testing and Results

Does issue expansion lead to policy change?

Using news articles as an indicator of agenda setting I seek to test whether issue expansion in the media within the NZ context leads to a legislative change in government policy, specifically: whether it led to an extension of the moratorium on Genetic Modification in New Zealand. The data for the issue expansion is derived using methods discussed in the previous chapter. Using media coverage as an indicator of issue expansion, Tables 4.1 – 4.4 show the number of articles as published by The New Zealand Herald. Although the moratorium on commercial field trials was imposed from April 17 2000 onwards until October 2003, the data for this study starts from March 2001 reflecting the availability of news articles in the archive which commences in March 2001. In the period from 2001 to 2003 the New Zealand Herald published a total of 446 relevant articles related to the topic of Genetic Modification. The majority of these articles are rated as neutral (0), negative 1 or negative 2; with 173 Neutral, 148 Negative 1 and 33 articles as Negative 2.

Table 4.1 2001-2003 GE data annual breakdown

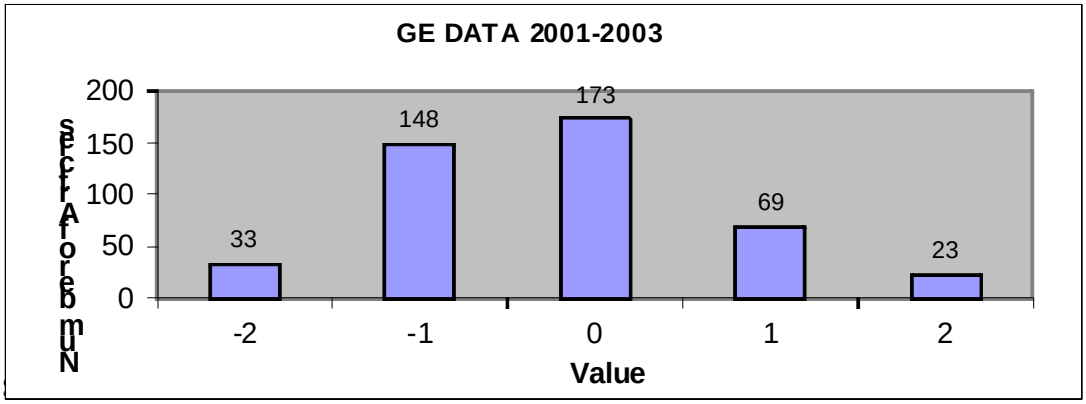
Value	*-2*	*-1*	*0*	*1*	***2***	**Number of articles**
Year `01	6	24	31	24	8	93 (21%)
Year `02	4	45	81	23	6	159 (36%)
Year `03	23	79	61	22	9	194 (43.5%)
Total Number of Articles	33 (7.39%)	148 (33.18%)	173 (38.78%)	69 (15.47%)	23 (5.15%)	446 (100%)

Source: Author's own data

Overwhelmingly 79% of the articles were non-positive, with only 92 out of 446 articles in the positive coverage territory. Figure 4.1 (above) shows the breakdown of the articles over the 3-year period. Slightly less than half (43.5 %) of the articles covered were published in 2003, the final year in the period, followed by 36 % (159 articles) in 2002. Four graphs are presented in a chronological order to track the effects of agenda setting.

3)

Figure 4.2 2001-2003 GE articles distribution data



It is obvious from the theoretical discussions that policy actors use sophisticated rhetorical strategies in their effort to achieve their policy objectives. In Baumgartner's

words, “Those hoping to move the issue away from the province of experts and toward that of political generalists strive to portray the issue as a question with the broadest social and political implications. Those hoping to push the issue away from political generalists and toward the specialist portray the issue as a technically complex amendment to an established policy. Depending on the side that prevails in this rhetorical debate about the proper characterization of the issue, the question will attract the attention either of a large number of policymakers and the mass media or of a small limited number of specialists.”

These actors in their attempts to achieve their intended policy outcomes employed certain strategies to achieve those objectives. These strategies, used expansionists and contraction to expand and constrict the perimeters of the debate as the players see fit to suit their respective agendas in seeking to influence the policies. This is by no means a comprehensive coverage of all the players in the debates. In New Zealand, GM first emerged in the 1990s as a controversial issue in the public sphere when it was discovered that food products containing GM ingredients were sold in stores, and that GE research was being conducted in both the public institutions and the private research facilities (Henderson, 2005). As a result of political pressure a Royal Commission was set up in July 2000 to decide on NZ’s GM policy. A 2-year moratorium on GM field trials was imposed whilst awaiting the Royal Commission’s recommendation on New Zealand’s GM policy direction.

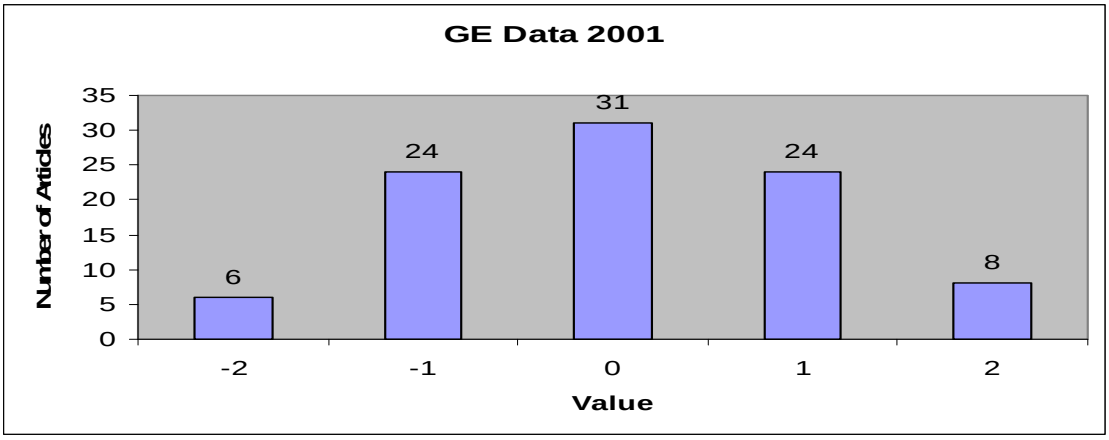
Once the government signaled its intention to allow the moratorium to lapse, anti-GE groups immediately launched their campaign changing the issues. As a consumer of the media one cannot help but be exposed to the hugely controversial issue. From the perspective of the experts and specialists hoping to control the process themselves, the safest strategy is to avoid the political (appointees) and public involvement, as much as possible. They tend to focus on the more technical aspects so as to exclude the other non-technical participants from the debate. Therefore disagreement amongst the experts is best avoided. "In the absence of controversy, their decisions are made extremely simple. In the presence of controversy, however, they must learn more about the issues and become involved in their decision. For specialists hoping to retain control over the process, maintaining at least the appearance of a consensus is therefore important" (Baumgartner, 1989:56). In the case of nanotechnology there is not much internal dispute whereas in GE/GM experts' opinions vary widely on the issues of safety (from contamination) and effectiveness of the technology.[11]

For the expanders, their goal is to generalise the debate and promote the issue onto the consciousness of the New Zealand public with the aim of widening the scope and number of participants. This is accomplished by redefining the issue to appeal to their interest in order to solicit their involvement. As a consequence, the GM debate provoked reactions from all sections of society. From local artists and celebrities protesting against GM "to

[11] According to Prof. Simon Brown (head of Nano research at the University of Canterbury), in terms of NMT research within NZ, there is no internal discord over safety concern as most research is not of safety concern because it uses very small amounts of nanomaterials and does not result in exposure of either humans or the environment to those materials. However, in contrast to research, he thinks there is quite some concern that NMTs are not safe in consumer products. Again there is uniformity as the concern regarding the safety of use in consumer products amongst experts. In short, there is neither major dispute amongst experts on safety of research nor disagreement on the lack of safety in consumer products.

put pressure on the Government" policies to a crowd of up to 10,000 people- significant for a country the size of NZ- demonstrating against genetic engineering on the streets of Auckland. When the findings of the RCGM were unacceptable to anti-GE campaigners, suddenly the integrity of the entire process was called into question. The Commission was labeled "anti-democratic" for not letting detractors have their say in the public hearings and for ignoring the majority opinion favoring a ban or at least a continuation of the moratorium. Predictably specialists in turn, say the GE debate is a "complex and very difficult issue for people to grapple with." (Beston, NZ Herald, Mar 03 2001). Whilst the pro-GE group's emphasis that the technology was "safe" has gone by the wayside, in favour of genetic engineering as a "solution to end world hunger" by increasing food production.

Figure 4.3 2001 GE articles distribution data



Source: Author's own data

Figure 4.3 (above) shows the distribution of media coverage for the year 2001. The data for the year 2001- the first year of this study- suggests that the overall tone of the media coverage was balanced with approximately equal numbers of positives and negatives. The balanced media coverage suggests that the effects of the agenda setting process has

yet to take effect- since media coverage acts as a conduit to measure the process of generalization by the expansionists- as negative media coverage .

At this stage it is fair to comment that the issue has yet to expand. The specialists, whilst not entirely in control of the policymaking process are at the very least trying to contain the debate within the specialist sphere by focusing on economic and scientific debates. They portrayed GM as a vital tool for the country's development, by linking having pro-GM policies with helping to create a conducive environment for science and research to grow our economy. Inversely, these specialists warned of the repercussions of not allowing the research and field trials to be conducted in NZ, by equating the rejection of GM technology with wanting the country to join the Third world. The chief spokesperson for pro-GM umbrella group Life Sciences, Dr. William Rolleston puts it in no uncertain terms, "It's about retaining the scientific capability in New Zealand, and having people invest in this country. If we all want to be peasant farmers working on the land, then a moratorium strategy might be appropriate. But we don't want to be a Third world country; we want to stay in the first world" (NZ Herald, Oct 2, 2001). That "the decision was better than a total ban but was likely to hamper research into grasses and forestry, two areas in which New Zealand led the world. The decision was not restrictive enough to force scientists out of the country but would definitely reduce competitiveness, particularly in new forage crops" (NZ Herald, Oct 2, 2001). Whilst others claim of a misdirected debate and that instead of debating about GMO food safety NZ should look at applying the technology to enhance its existing industries, complaining that "We still end up back talking about genetically modified food, but the big strategic interests for

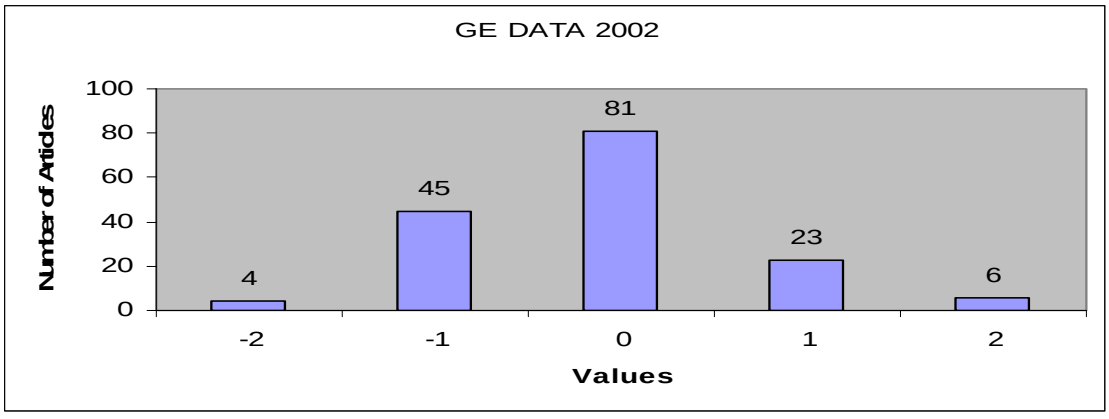
New Zealand are not the modification of foods—it's the modification of forage crops, trees, and animals for the production of specialized pharmaceuticals (Colin Harvey, chairman of technology firm Agritech, NZ Herald, Oct 31 2001)."

Using economic consideration and appealing the notion that NZ's primary sector as central to NZ's economic future, the New Zealand Science Council, an organization of university science deans and seniors, placed a full page ad in the Herald endorsing the findings of the RCGM. "In ten years," it trumpets, "New Zealand could be enjoying great economic wealth and prosperity as world leaders in agricultural and agrarian technology…or we could be struggling to defend our traditional markets against the challenge of superior products from other countries." Justifying their action "We felt we had a responsibility to do it. We have a large number of postgraduate students engaged in research in this area and, in terms of a career for them, this issue is pretty important. It was an initiative we took on behalf of our students (NZ Herald, Oct 11, 2001)." *Federated Farmers* which represents NZ farming interests, has considerable sway over the government as it represents one of the biggest sectors in New Zealand's economy. The organization had endorsed APEC leaders' declaration recognizing the benefits of GE and acknowledging "the benefits of biotechnology in improving productivity, increasing nutrition and reducing the environmental impact of agricultural production (The Herald, Apec line on GE the way for NZ to go, Oct 23 2001)." Headed by Alistair Polson, it had urged the Government to "adopt the central conclusion of the royal commission, that we should preserve our opportunities to use these technologies as part of the blueprint to lift living standards for all New Zealanders through a knowledge-based economy. (Ibid)"

The group orchestrated the sending of 4200 letters by its members to MPs to accept the RCGM's findings, in response to the Greens' pressure against GE.

Along similar utilitarian/technical lines of argument, some claim that the technology is good for the environment. GM could provide an answer to environmental problems as "New Zealand will one day be cleaner and greener because of the careful and responsible application of GM to reduce the use of some agrochemicals, the development of GM solutions to the pests which threaten our native forest and agriculture, and the ability to use GM crops and animals to produce high-value pharmaceuticals" (NZ Herald, Oct 2, 2001). These actions must be seen as a stake holder's response to threats to their interests and act to fence off potential intruders onto their turf. At this stage, it is fair to conclude that the debate remained within the sphere of specialists. However, by 2002 these efforts to frame and contain the debate by pro-GE specialists and interest groups begun to unravel and it failed to stop the process of expansion as is indicated in Figure 4.3 below.

Figure 4.4 2002 GE articles distribution data



Source: Author's own data

Data for 2002 shows an increase in negative coverage by the media indicating a shift in public opinion. This change from the previous year suggests that the agenda setting process has begun, with the process of issue expansion getting more players participating in the debate. The increase in media coverage is not surprising as media coverage of an issue increases considerably whenever parliamentary debate is combined with public demonstrations and other activities outside Parliament designed to attract publicity. The process of issue expansion intensified as the GM moratorium's expiration drew closer. These efforts at expanding the GM issue proved to be a resounding success. As Henderson points out, "the key factor to the success of the parliamentary opposition in generating such a debate was the coordinated activities of other opponents outside Parliament." The coalition of anti-GE campaigners were a hodgepodge of groups (players) converging from different sources and on various grounds; some have ethical concerns, others environmental/scientific, others still were apprehensive because of the social implications.

The list of these activist groups, although not exhaustive, include: GE Free New Zealand in food and environment (RAGE), Greenpeace New Zealand, Safe Food Campaign, Mothers Against genetic engineering (MAdGE), etc. According to Annette Cotter, GE spokesperson for Greenpeace NZ in her correspondence to Henderson (2005), "the objectives of this...campaign were to increase public awareness about genetic engineering, to influence the Government in favour of limiting genetic engineering to laboratory-based research, and to prevent the introduction of GE field trials." Thus, "the GE Free campaign demonstrated three main communication strategies. These involved,

first communicating with the public in an unmediated way; second, encouraging public lobbying of government; and third, creating media events to gain media attention" (Ibid:127).They actively encouraged public participation (Ibid):

> Individual members of the general public were encouraged to lobby government by sending letter to local media, or phoning news talk radio programmes, and by sending preprinted postcards to five ministers: Pete Hodgson (Research Science and Technology), Marian Hobbs (Environment), Jim Sutton (Agriculture), Annette King (Health), and the Prime Minister, Helen Clark. The post cards featured five different slogans and graphic typical of the rhetoric used throughout the campaign:
> 1) Genetically engineered organisms are unpredictable and their release irreversible. Keep GE in the lab.
> 2) This is not a testing ground. Keep our environment GE Free,
> 3) Agriculture—the backbone of this country. Don't muck it up. Keep NZ field GE free.
> 4) Our children are not guinea pigs. Keep GE out of our food.
> 5) Safe food, sure markets, treasured land. GE free NZ. Ours for the picking.

There was also the *organic farmers*, whose group consists of 600 out of more than 50,000 farmers in the country. Collectively organic farmers produce organic products worth about $120 million of which $70 million is meant for the export market. They claim that GE crops will destroy their livelihoods by contaminating their crops. An organic farmer even offered a $5000 reward to an MP that introduces a law that would force chemical companies to pay for damage caused by their GE crops (NZ Herald, March 12, 2001). The issue of safety and the economic implications of GM contamination was a major argument against GM. Sharing the concern that GM could potentially ruin NZ's reputation as a clean and green food producer. Greens co-leader Jeanette Fitzsimons declared "We don't think that it is safe to take it out into the field at this stage." **"**I think of instances like a farmer whose livelihood might be seriously affected if he or she lost organic certification as a result of contamination by GM plants, seeds, pollen or whatever" (NZ Herald, Oct 18 2001) . Even the Kiwifruit industry was fearful of its

export market. They stressed that any existing or proposed GM development should not be at the expense of existing successful export earnings. In its report it states "Adverse consumer opinion caused by the perception of New Zealand as an exporter of GM foods could jeopardize a significant proportion of the kiwifruit industry's contribution to the national economy. (ZESPRI, 2000:Executive Summary 4.4 in Henderson, Weaver and Cheney 2007). According to the authors (Ibid), ZESPRI International put out a statement regarding GM:

> Zespri International has said no to genetic modification…We are already acknowledge as a world leader in environmental integrity…all export ZESPRI Kiwifruit must be grown using the KiwiGreen system which maps, monitors and measures the entire production process, producing a high quality fruit of minimal residues while sustaining the natural environment.

As Henderson (2005: 230) explains:

> The GE Free campaign… depends on a conceptualization of political identity for New Zealand on two levels. First the campaign constructs New Zealand as a collection of individuals with democratic right to debate the issues and influence national public policy. At the same time, New Zealand is conceptualized as a small nation or global participant in international world affairs with freedom of choice in terms of the right to be different from other countries, such as the United States. This choice is represented in both the preferred economic direction for New Zealand's primary produce (for niche organic market) and in deeply held environmental principles in a rearticulation of the stances taken over the Springbok tour and New Zealand's nuclear-free stance pitted New Zealand in a "David v Goliath" stand against the might of the United States… Citizen activism at the time of the Springbok tour of New Zealand in 1981 and New Zealand's nuclear-free stance in the 1980s resulted in the legitimation of ideological stances that successfully pressured the governments at that time to adopt public policy consistent with these view points. The focus of the GE Free campaign involved very similar campaign tactics (e.g. large public rallies and marches and the declaration of nuclear-free zones in regions of New Zealand) to resist the official discourse of the time but the GE Free campaign had the addition of Web-based tactics to provide information and to coordinate action.

The most prolific and therefore prominent group at redefining the GM debate is Mothers against GE (MAdGE). The group grabbed the media attention with a series of

provocative stunts. MAdGE's campaign is a perfect example of the attempts by these groups to expand the number of participants and generalize the debate. It is a poster child for other interest groups seeking to actively engage in agenda setting through their various campaigns. Its objective "was to create awareness and educate New Zealanders about GE, but it particularly targeted mothers, who research had identified as purchasing 80% of food bought in NZ (Ibid). The group redefined GE as an issue of food safety with the message: "MAdGE believes that GE foods must be proven to be 100% safe before we will feed them to our families" (Weaver, 2007:15).

Their first act of protest was at a (Richmond Rd, Auckland) Woolworths-brand supermarket on Mothers' Day where they distributed 120,000 "educational toolkits." One side of this card detailed food brands "committed to being GE Free" with the reverse side listing brands and products that "may be GE derived", along with company telephone numbers that consumers were encouraged to call to explain their reluctance to buy their goods. They went into the supermarket, filled shopping trolleys with food, taking them to the checkout and then demanded to see the manager and seek some assurance that the food did not contain GE. When this could not be done they left the food at the checkout and walked out with their shopping trolleys empty.[12]

MAdGE also sought to stop GE trials by filing a lawsuit seeking judicial review on an application to ERMA seeking approval for field trials.

> During the period prior to the lifting of the moratorium on GE research, the Environmental Risk Management Authority (ERMA) granted an application from the Crown Research Institute, AgResearch, to develop a herd of transgenic cattle.

[12] See, http://indymedia.org.nz/article/63773/mothers-against-genetic-engineering-madg?page=1

> The application was the first to be lodged involving animals in GE research since the Royal Commission's report (Collins, 2002). The experiment involved inserting human as well as other mammal genes into calf embryos to produce milk containing specific types of protein, which, AgResearch claimed, "could help sufferers of disease like multiple sclerosis." MAdGE sought to challenge ERMA's decision through judicial review arguing that it failed to consider the ethical, health, and environmental aspects of the transgenic experiment. Determining that the case should proceed to the High Court the presiding Judge argued it merited review in terms of public interest, fairness, and justice, that role performed by "voluntary community groups such as MAdGE, was an important one." At this point it appeared that MAdGE had broken significant ground in engaging the State judiciary and claiming the need for increased dialogue about GE research. When the four-day hearing of the legal case opened at Auckland's High Court on the 10th June, 2003, MAdGE members- in an effort to stimulate debate about the ethics of GE research- silently paraded outside the Court as chimera wearing full headed cow masks, conservatively style feminine blouses, skirts, stockings and dress shoes. (Weaver, 2007: 20)

The novelty of the cow headed women was certainly favoured by the media: the following day under the headline "Pull the Udder One, Minister", the largest circulation daily, the New Zealand Herald, gave a third of its front page over to a close-up photograph of five of the masked protesters. MAdGE, however, lost the Court case and, furthermore, the High Court ordered MAdGE to pay $24,000 of AgResearch's Court costs, a ruling that crippled the group financially, and also thwarted attempts to claim a legitimate role for activist and community groups in State decision making processes around GE.

Having lost the case against ERMA, MAdGE escalated their opposition moving into a "more adversarial and controversial tactical phase" (Ibid). Needless to say, the Speaker of the House labelled their actions as "anti-democratic" and followed this up with issuing a trespass notice barring the women access to the Parliament for 2 years (Ibid).

Such tactics proved successful at raising awareness and increasing participation; and the group escalated their campaign with a series of further protests. The most infamous of which was on September 10, 2003, when nine MAdGE members demonstrated inside the New Zealand Parliament in what can be described as a colourful and vocal protest. After breaching security mothers stripped off their shirts, baring pink bras and held anti-GE banners aloft in the public gallery. The group "had to get in their face and show our knickers," because "the women felt MPs were not listening to those who wanted the moratorium on the release of GM extended" (Weaver, 2005: 12). Needless to say, it became the news highlight of the day. Not content with that, three weeks later the protest group posted seven controversial billboards in Auckland and Wellington depicting the image of a four-breasted woman, pictured side on, on her hands and knees with a milking machine attached to her breasts and the word; GE stamped on her thigh.[13] Subsequently, the billboards were censured. The group claimed that the cowgirl campaign was intended "to provoke public debate about the social and cultural ethics of genetic engineering in New Zealand." The group's billboard campaign with its highly emotive image redefined GM as something unnatural that by virtue of this "unnaturalness" GM is grotesque technology. Their message was simple: "Ban all field trials and commercial releases of genetically modified organisms into the environment; keep GE foods out of the country; and restrict genetic engineering to contained laboratories."

[13] The Advertising Standards Authority billboard received 30 complaints and the billboards were banned. ASA ruled "...the depiction had indeed caused both serious and widespread offence in the light of generally prevailing community standards, distorting the debate on genetic engineering and implying a deformation of women."

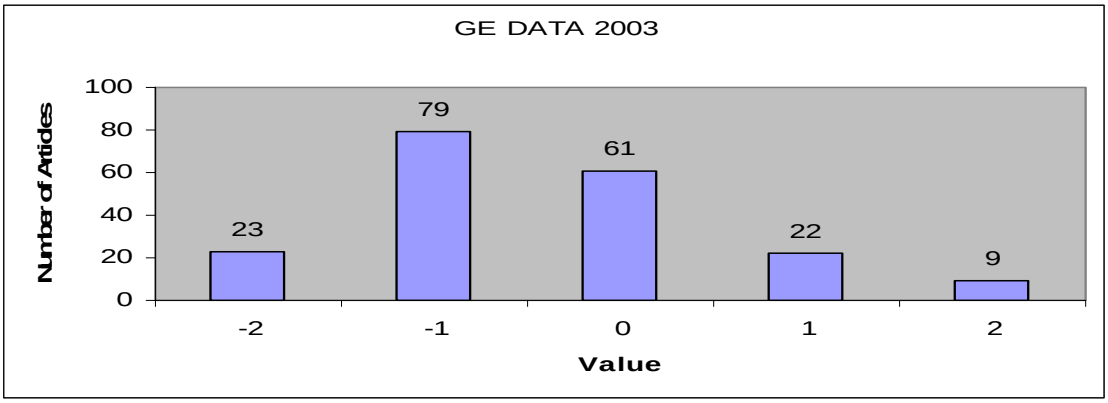
Full evidence that MAdGE succeeded in steering public sentiment towards an anti-GE position came in the group's final act of public protest, On the 11th October 2003, along with Greenpeace and the GE-Free Coalition, MAdGE organised a mass march in Auckland protesting the lifting of the GE moratorium with an estimated crowd of at least 10,000- a significant number for the country the size of New Zealand. It was one of the largest demonstrations ever seen in New Zealand according to Dye (2003) and public opinion polling at this time identified 68.6% of New Zealanders supporting the moratorium's extension.

Other actions and ramifications of anti-GM campaign include: forcing forestry giant Carter Holt Harvey to abandon approved GM trials, with the firm citing it did not want to be at the centre of a political storm. Crown Research Institutes' GM trial sites were invaded and crops were pulled out and destroyed by a group called the "Green Gloves". From these examples, it is fair to conclude that strategic players using through redefinition of an issue shifted the scope of the debate by expanding the number of players to generate opposition.

GM issue expansion succeeded in shifting the agenda out of the hands of experts and technical committees. As one public policymaker observed, "public debate and discourse is in danger of migrating away from institutions of government." (Dwyer, 2004: 121) In the words of Baumgartner (1988: 53), "As policymaking communities expand to include more participants, the nature of the participants changes along with the number. Policy specialists dominate cases where participation is low, but political generalists play an

important role where participation is high."With the success of anti-GE groups such as those described driving the debate and setting the media agenda, it is logical that the trend of increasing negative media coverage continues, with the numbers of negative articles outnumbering the positives by a ratio of close to 4:1. The graph below shows the year-on-year increases in media coverage, with a decrease in positive coverage and a noticeable increase in negative press coverage in the three-year period.

Figure 4.5 2003 GE article distribution data



Source: Author's own data

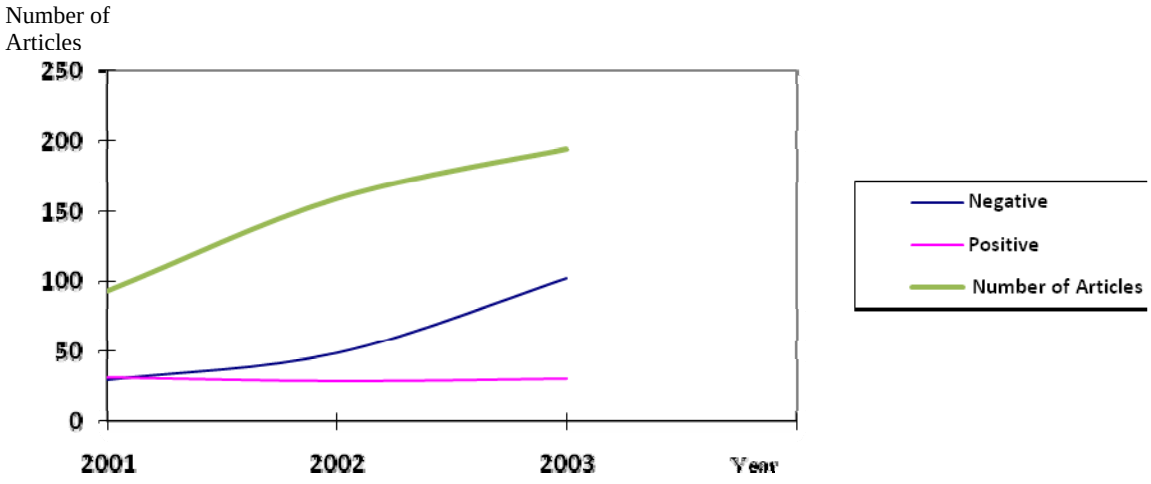
194 articles were written on GE which more than doubled the amount of articles written in 2001. Two years before in 2001, only 94 articles were published. This trend reflects the reality on the ground as opposition groups realizing that the end of the moratorium was approaching intensified their mobilization efforts by including more "irregular participants" in the debate.

Alluding to the drastic actions taken by anti-GE protestors such the mass public protest in calling for the strictest regulation of GE (such as the extension of a moratorium), in effect the banning of GE, these "irregular" participants, using a term by Gormley in the debate

attracted the most media attention by staging the most spectacular stunts. He sums it up using the following sports metaphor

> In regulatory politics, as in baseball, there are "regular" and "irregular" participants. Visit a ballpark and you will see the irregulars—those in the bullpen and those on the bench—only on special occasions (close games, important games, extra-inning games, etc.). Visit a regular proceeding and you can count on seeing bureaucrats and regulated industry officials. These are the regulars. The irregulars—politicians, citizens, journalists, judges and professionals—participate only under certain circumstances. In regulatory politics, as in baseball, the participants vary from game to game. The big difference between regulatory politics and baseball is that, in regulatory politics, the irregulars are more interesting to watch.

Figure 4.6 Tracking of the changes in GM media coverage for 2001-2003



Source: Author's own data

With the staging of multiple protests and headline-grabbing publicity stunts, it is no surprise that the number of articles written relating to GE more than tripled within the three-year-period. In the final year (2003), there was significantly more negative coverage than the years before with 102 negatives (23 rated negative 2; 79 rated negative 1). In comparison, only 31 articles were rated as positive with 22 rated positive 1 and 9 articles with positive 2 rating. Issue expansion and mobilization as indicated by the data was successful as the topic gained traction.

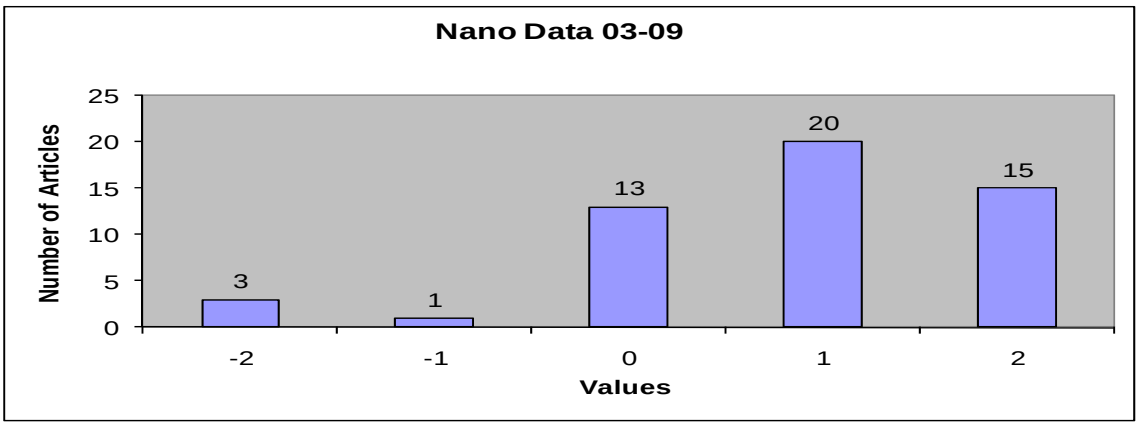
The level of media attention garnered by the anti-GE campaign, and the significant numbers of public rallies throughout the country suggest that the agenda setting process was successful in raising public awareness of the issues involved and garnered public support for a GM free stance. So effective were the anti-GM agenda setters at garnering public opposition to GE that "In the first week of November 2003, the New Zealand Herald reported that "supermarket chains are falling over themselves to claim the most anti-GM stance." That week Foodstuffs, the owners of four supermarket chains announced a GE-Free stance, and Progressive Enterprises, owner of a further six chains re-publicized its commitment to GE-free foods. Less than three weeks later, Goodman Fielder, one of New Zealand's biggest food companies became 'GE-free'." The expansionist strategy was effective in terms of putting the issue on a public platform to mobilize public support as evidenced by the marches, protests and increased media coverage. The private sector ever aware of threats to their profits acted swiftly in bowing to anti-GM pressures in fear of a consumers' boycott. The Labour-led government however, did not vote for a de facto ban on GM field trials as the theory predicts. The much wanted legislative change, for GM to be banned, *did not eventuate* as the Labour government allowed the moratorium to expire on the 30 October 2003.

Does issue contraction lead to no change in policy?

Because of the lack of coverage in nanotechnology (NMT) - as manifested in the small number of articles vis-à-vis GE-related articles- I extend this case study's coverage period to six years to increase the sample size. The search on New Zealand Herald's online archive shows that there are only 52 relevant articles for that period. This is a very

low figure when compared to GE/GM, as it is spread over a six-year period. This is nothing out-of-ordinary as the media reflects the concerns and interests of the public. Figure 4.7 reveals distribution of the articles along the value-scale. Because of the scarcity of articles, I decide to group all articles in one graph. Just as for GE I used the same method of extracting data for coverage on nanotechnology. Evidently and as expected, there is no change in government policy towards nanotechnology investment. This outcome is to be expected as unlike GE, there are no calls for this technology to be banned.

Figure 4.7 2003-2009 coverage of nanotechnology in The New Zealand Herald



Source: Author's own data

An examination of the data shows the number of articles from the year 03 to 09 amounts to 52 with no negative coverage bar 4 articles. Negative coverage of Nanotech as shown in this data set is practically non-existent with less than 8% of all articles classified as being in the negative category. The majority 67% (35 out of 54) of the articles are valued at positive 1 or higher, with 20 articles valued at positive 1 and 15 articles valued at positive 2. 25% (13 articles) of the articles are neutral. The remaining 4 articles are rated as negative with 1 article rated as negative 1 and 3 articles rated as negative 2. I should point out that the overwhelming majority of the articles pertain to the technical aspect of

the technology. Unlike GM, there is barely any coverage on the socio-political aspect of NMT. The lack of negative coverage and overall publicity can be attributed to the lack of expansion on this issue. When an issue fails to be picked up and expanded then there is no chance of a policy change. In comparison to Nanotech's coverage (52 articles over the span of 6 years), the GE issue had 446 articles written about it in half the time span as that of Nanotech. In other words, in half the time, the GE issue received 9 times the coverage. The GE-Free coalition clearly succeeded in GM issue expansion albeit without the expected policy change; whilst, nanotechnology remains in the control of specialists away from the public debate.

In the case of nanotechnology, all the major players concerned are specialists. The discourse involved a handful of industry players without outside interference. Prima facie, the specialists are in agreement with the direction of development in New Zealand.

The Ministry of Research Science and Technology (MoRST), plays a vital role in that it provides the funding for incubating the industry. It provides investments indirectly through government-owned CRIs; and it distributes funds directly to research institutes through allocation of research grants. Academic researchers in the field of NMT are mostly working within universities and CRIs. So contained is the policymaking for NMT that calls for government regulation came from within the specialist group and not outsiders as in the case for GE/GM.[14]

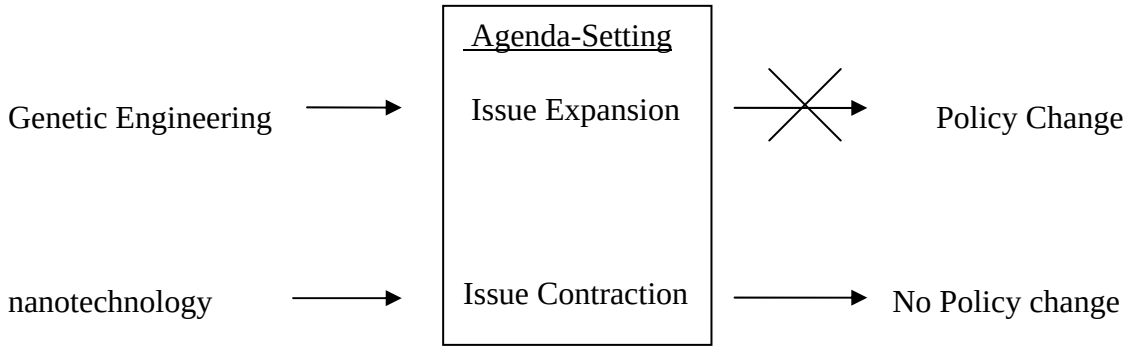
[14] In 2009, University of Canterbury's Professor **Simon Brown** called on the New Zealand Government to introduce regulation and standards in the report, *nanotechnology-here and now* (the Ministry of Research, Science and Technology's website)

Findings

When taking into account the differences in timeframe it is even more impressive that the GE/GM coverage (as measured by the number of articles) still outnumbered NMT by a factor of 8.5 to1 given that the data for GE/GM only covers a three-year-period whilst NMT coverage was over a six-year-period.

Having showcased issue expansion and contraction for GM and Nanotechnoloy respectively through agenda settting and its effects on policy change. It is found that the result does not support the hypothesis statement 1.1 as government policy towards genetic engineering remained *unchanged* despite a successful campaign at issue expansion. Although the data for issue contraction in relation to nanotechnology policy supports hypothesis statement 1.2.

Figure 4.8 The findings on GM and NMT agenda setting processes



According to the report by the Royal Commission on Genetic Modification, public submissions to RCGM "had overwhelmingly focused on concerns about the introduction of genetic engineering to New Zealand: 92% of the 11,000 individual submissions,

presented in writing, were against the introduction of genetic engineering to food or the environment' (Henderson)." The GE Free coalition campaign was initiated because of a perception that public input in to the Royal Commission on Genetic Modification had not been heeded—that individuals and environmental interest groups lacked power in the debate (Henderson, 2005). The efforts of these groups at generalising the issue resulted in expansion of the numbers of participants and widening the debate. The overwhelming negative media coverage as indicated by the data suggests issue expansion of the debate through generalization and mobilization did take place. The data is reasonably accurate in reflecting public and media's anti-GM positions.

In spite of public opposition, On Oct 30 2003(The New Zealand Herald), the moratorium on field trials and GE research was allowed to lapse as the government refused to extend the moratorium. These developments show that issue expansion/redefinition does not have an effect on a government's legislative policymaking process as it failed to compell the government to extend the voluntary moratorium on field trials beyond October 2003. This raises an interesting question about the underpinnings of the agenda setting theory. In spite of the significantly amount of negative coverage compared to positive coverage and also in relation to the total number of articles, a change in policy has not occurred as expected.

Can Veto Player Theory explain / predict the lack of change in policy?

As has been shown in this thesis, agenda setting fails to provide a satisfactory explanation in one out of two case studies in this thesis. In the case of genetic engineering,

overwhelming public opposition and negative media coverage, indicate that anti-GE groups succeeded in expanding the issue. They mounted a series of high-profile campaigns, in their attempts at generalizing the debate, and were successful in increasing the number of participants. Yet, the Government policy on GE remained unchanged. No new laws were introduced upon the end of the GE field trials moratorium. This unsuccessful attempt to influence legislative policymaking flies in the face of conventional agenda setting theory as set out in Chapter 2. In this section I will use Veto Player Theory to model the likelihood of policy changes. Perhaps Veto Player Theory is a better way of explaining and predicting policy changes.

Partisan Veto Player

To refresh, an agenda setter within the Veto Player Theory framework (Tsebelis, 2002:2) is a veto player that "presents 'take it or leave' proposals to the other veto players which have significant control over the policies that replace the status quo." The agenda setter then, has to "make proposals acceptable to the other veto players, otherwise, the proposals will be rejected and the status quo preserved (Ibid)." By identifying the preferences of veto players, the position of the status quo, and the identity of the agenda setter, we can predict the outcome of the policy making process.

Partisan Veto Players are political parties operating within a parliament. Although these parties often have representatives with different political and social values across the spectrum, for the purpose of this study, these parties are considered single unitary units of analysis. It is a New Zealand convention that the party caucus decides on policy matters

and parties vote in unison blocks. In contrast to the US where party discipline is lax; party discipline is strict and paramount in a Westminster democracy. As such voting by MPs and MPs' decisions ought to be in conformity with their parties' policy position.[15] In the case of the US, expansion and contraction strategies may have more effect on influencing policy outcomes if MPs are allowed to express their individual preferences in the form of a conscience vote (in the NZ context) free from towing the party line. The significance of this observation is more relevant to NZ. Tsebelis (2003, 84) notes that "in electoral systems where candidates compete for a personal vote they are more likely to pay attention to the demands of their constituency as well as their party, while in situations where the candidate's chance *(i.e. a list MP)* depend only on the party leadership, loyalty to the party should be the rule." Logically, party cohesion and discipline will be higher in systems with not only personal votes but also party votes.[16] Inversely in the American system of divided government points out Tsebelis, "if the parties were cohesive only bipartisan bills would be passed…It is because parties are not cohesive that policymaking is possible."

[15] To break rank with the party an MP risks receiving severe sanctions from the party. As an example, Georgina Te Heu Heu a National Party MP (of Maori descent) publicly disagreed with the then leader of the opposition and the National Party Dr. Don Brash's position on race relations and Maori rights in New Zealand and was thereafter disciplined by the party as a consequence. This shows that strict party discipline is in place and any dissent in terms of going against party policy is not tolerated. MPs are allowed to vote according to their individual beliefs and not that of their party when there is a "conscience-vote" on bills dealing primarily with moral issues. Usually, a conscience vote will be about religious, moral or ethical issues rather than about administrative or financial ones; matters such as the prohibition of alcohol, homosexual law reform and the legality of prostitution are often subject to conscience votes. In contemporary New Zealand, there have been many such occasions where MPs are allowed to vote either because there is a lack of party line or simply allow to vote freely. These include: the Civil Union Bill (for homosexual couples to attain marriage equivalent status and rights), Prostitution Reform Bill (to decriminalize prostitution and provide sex workers with rights) and in the 80s Abolition of the Death Penalty (1989), Homosexual Law Reform (decriminalize homosexual activities**).**

[16] In NZ a list MP in contrast to a constituent MP does not compete directly for votes in a constituent but is voted indirectly into parliament through party votes. The chances of getting elected depend on how high one is ranked on one's party list and the total percentage of votes won by the political party.

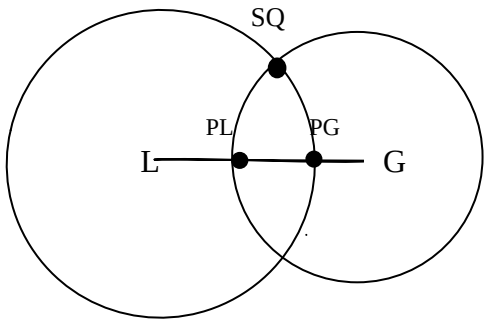
> The internal cohesion of these collective veto players affects the size of the area within which the winset is located. The lower the party cohesion, the lower the policy stability. If we combine this argument with the findings of the literature on party cohesion in different regimes, we will conclude that ceteris paribus presidential systems have lower policy stability… The fact that parties lack discipline in presidential systems makes it difficult or even impossible to identify the origins of particular votes.

In other words, where party discipline is strong as in the case of New Zealand the party counts as a singular veto player but where the party discipline is weak as in the case of the US and their representatives seldom tow the party line and vote in blocks then it is hard to consider it a single-entity Veto Player. The only occasion where MPs vote as individuals without towing the party's line, is on moral issues. Alas it is not the case in this study.

Does an increase in the number of veto players lead to lack of change?

In chapter 2 I had outlined the underpinnings of Veto Player Theory. Diagram below represents the two veto players. Individual veto players decide by unanimity rule because disagreement by any one of them can abort a change of status quo (Tsebelis, 2003). Assuming that both players seek to arrive at their respective policy ideal points, if veto player G (Green Party) makes an offer to veto player L (Labour Party) player G will chose the point along PG which is closest to his ideal point.

Figure 4.9 Ideal policy points between two veto players



Source: Tsebelis, 2002

Vice-versa, L will choose along PL when proposing with the aim of having it closest to its ideal point. With that in mind it is easy to model once all the players are identified. I can identify the political parties whose acceptance is crucial in shifting away from status quo. By identifying their preferences, we can more accurately model the outcomes. The table 4.10 below shows the composition and distribution of seats amongst the political parties in the 47th NZ Parliament.

Table 4.10 The composition and seat distribution of 47th NZ Parliament.

Party	*Parliamentary Seats*	*Position on GM**
Labour	52	For
National	27	For
NZ First	13	For
ACT	9	For
Green	9	Against
United Future	8	For
Progressive	2	For
	120	

Source: www.parliament.nz

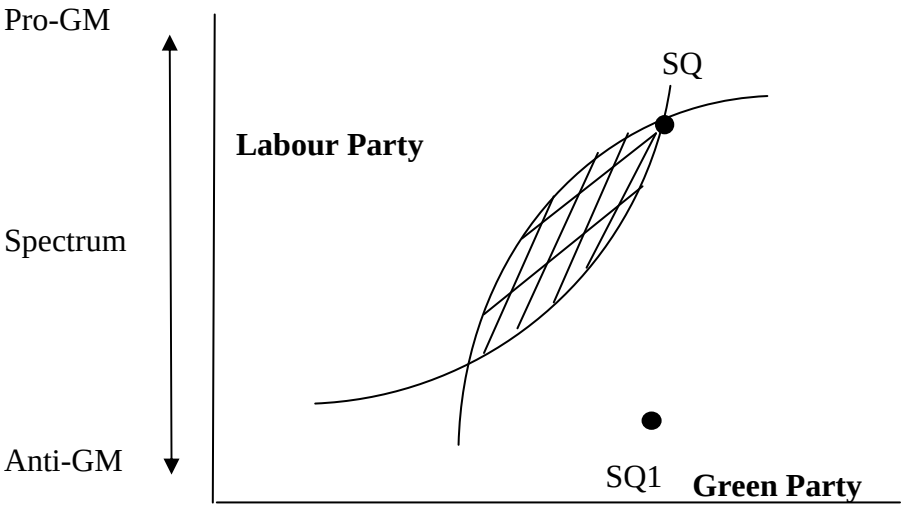
The Greens, officially known as the Green Party of Aotearoa New Zealand, as the name suggests run on environmental issues. It has its roots in the Values Party, thought to be

the world's first national-level environmentalist party.[17] Prior to the switch to MMP, the Greens had failed to garner sufficient support to gain representation in Parliament under the first-past-the-post system. 1999 marked the ascendency of the Greens onto the national political scene. Even though the Green Party was a minority party after it gained 7 seats in the 46th Parliament in 1999 it held enormous political leverage over the Labour government as the third party supplying votes to pass legislation. This inauguration into Parliament also provided the party with a platform to campaign on GE issues. Thereafter, the Greens have called for NZ to declare itself "GE-free". The NZ Green Party pushed for the establishment of the Royal Commission on genetic engineering, by insisting that the commission be established as part of the confidence and supply agreement with the then-incoming Labour government. The RCGM was to hear submissions from all interested parties, including researchers in the public and private sectors, agro-producers and exporters, environmental groups, religious groups and the general public. Prior to 2002 the Greens was not in coalition government, nevertheless the party supported Labour on confidence and supply in return for a Royal Commission on GM to be set up by the Government.[18] In the 2002 election, the party polled 7% gaining them 9 seats. In the lead up to the election, the party stood in opposition to the Government and was harshly critical of the Government's plan to allow the moratorium to expire. The Greens are by far the most prominent anti-GE political party in this debate.

[17] The Values Party originated in 1972 formed at Victoria University of Wellington.
*This refers to whether they support the recommendations of the Royal Commission on Genetic Modification
[18] In addition, the Greens gained a $15 million energy efficiency and environmental package in the new government's first budget.

With a total of 120 seats, at least a majority of 61 votes is required in order to pass any legislation into law. The Greens which campaigns on environmental issues are the only political party championing a "GE-Free" New Zealand. In 2001 in the period post-RCGM, The Greens had threatened to withdraw from their coalition with co-leader Fitzsimons stating that the party's supporters "would not tolerate its continuing to back the Coalition if it took the country down the 'GE road'." Having known the Green policy points derived from these statements, an analysis can be made by constructing a model in the next section.

Figure 4.11 Two-party scenario: Green party (proposed) ideal policy point and status quo



Minimum winning "coalition"

Based on the distribution of the seats amongst the parties, we can construct a "minimum coalition" of the veto players required to successfully pass a piece of legislation. Given that the threshold for a simple majority is 61 votes, the Greens (with 9 seats) in reality had only needed the support of the Labour Party (with 52 seats) to shift the status quo as the combined number of votes would achieve the minimum majority of 61. Moreover

support from Labour is crucial for without their support it is virtually impossible to pass any legislation. With the ability to stop any bills, Labour is the Veto Player in every sense. The diagram above shows the status quo (SQ) of allowing the moratorium to expire. The Green Party's push for a ban on commercial field trials represents a shift to SQ1. *The veto player who sets the agenda has a considerable advantage: he can consider the winset of the others as his constraint and select the outcome he prefers.* In other words, the power of the agenda setter depends of where he stands in relation to others. With the advantage of foreknowledge with regards to what others are willing to accept Greens chose to take an uncompromising position and chose to fight an "unwinnable" battle by advocating a position it knows to be unacceptable to its counterpart. The following section will discuss why with the inclusion of other players serves to dilute the influence of the Greens.

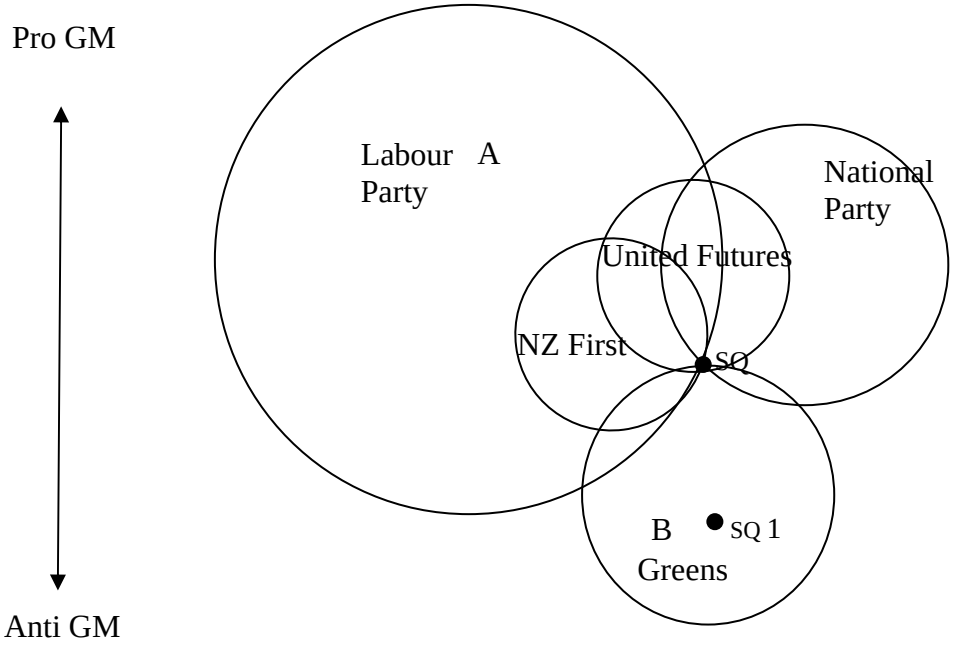
Moreover, under an alternative scenario (I shall call scenario B), given the Parliamentary composition at that time, to successfully extend the GM moratorium without Labour's support would require a Herculean task of uniting 4 other players in addition to the Greens in order to pass the 61-vote threshold. In reference to the ideological distance between the parties and more specifically on the issue of GM, scenario B is least likely to succeed. In reference to the GM ideological stance of the various parties, the likelihood of a bill attaining legislative success is highly unlikely since most of the parties do not support the bill. To illustrate this theory in practice, I point to the failed attempt by the Green Party to introduce an anti-GE bill. In April 2003, the Green Party attempted to introduce a new bill (Hazardous Substances and New Organisms (Genetically Modified

Organisms Moratorium Reinstatement) Amendment Bill) calling for the preexisting but soon-to-be expired GM moratorium be extended. This bill was soundly defeated (95 votes to 25 votes) in the first reading with all the major pro-GM political parties voting against it. Reflecting their ideological position towards GE, the pro-GE parties voted that 'No's were the New Zealand Labour 51 votes; NZ National 27 votes; the ACT NZ with 9 votes; and the United Future Party with 8 votes. While the 'aye's consist of NZ First with 13 votes; Green Party with 9 votes; Progressive with 2 votes; and Maori Party with 1 vote. As a result, the bill did not pass the first parliamentary reading. Ceteris Paribus, the only circumstance in which the bill would succeed is if the Greens had at least 45 votes in Parliament. Even though by definition all veto players are equals in influence on the legislative making process; some players' (political parties) support in changing status quo are more crucial than others. It is especially true when there is a disparity amongst the parties with regards to the distribution of seats in the House of Representatives as is the case here.

The Status Quo Becomes More Entrench As More Parties Come Into Play: Especially When They Support Existing Policy

The diagram below provides a graphic representation the various political parties, their preferences and the status quo of GM policy from 2001-03. It reflects the players agreement to institute a two-year moratorium pending the investigation and recommendations made by the Royal Commission's Report on GM.

Figure 4.12 Multiple political parties scenario



The move from SQ to SQ1 (as represented by two dots), however, represents the Greens' proposal to extend the moratorium moving away from the status quo of ending the moratorium after the two-year period. The Green Party wants a change in legislation as symbolize by a move from SQ (which allows for field trials once moratorium ends) to SQ1 (a complete ban on field trials).

Unlike Agenda Setting Theory, VETO PLAYER THEORY takes into consideration whether a proposed change is acceptable to other players. Since any shift requires the approval of other parties because their votes are required for any legislation to pass, the Green Party has to appeal to other parties by making them acceptable to other political parties. The positions that are acceptable to other VPs represent all the points within the winset; whilst those policy points deemed unacceptable falls outside of the winset. The

proposed (shift to SQ1) ban on GM by the Greens is not endorsed by other veto players. Since no other parties (other than the Greens) find SQ1 (a complete ban) acceptable it clearly falls outside of the winset. As long as the position that the Greens hold and more importantly the policies that they push for (SQ1) are outside of the winset and distant from the ideal policy points of other parties, any shift to SQ1 is unlikely. The Green Party's proposed legislative policy for a complete ban on GM field trials is considered too extreme for other political parties, whose blessings are required (since their votes are needed), to be successful- it is outside of the winset. There are multiple political parties in play and those parties do not endorse a move to SQ1. Since there are so many players preferring to entrench the existing policy it is harder for any shift to SQ1 to occur especially when the proposed policy change is deemed to be too extreme. This is in line with one of the corollaries of VETO PLAYER THEORY:

The importance of agenda setting decreases with more veto players and increases with the central location of agenda setter.

The agenda setter will have more power the more centrally located among the veto players he is, because he has a higher probability of being located more frequently inside the winset of the status quo" (Tsebelis, 2002)

Players such as the NZ Green Party whose advocated policies are not centrally within the winset as a result of its ideological postition vis-à-vis other players will have their agenda setting powers diminished. The result of this is that others are unwilling to shift away from the status quo. Thus, a change in status quo will never occur under these sets of circumstances. Regardless of how the agenda setting process goes. With the increase in the number of veto players, changes are even harder to take place since shifting the status

quo necessitates an agreement from more players. In this case, not only is this true, the increase in the number of players also serves to dilute the bargaining power of the Green Party. Further diminishing the leverage that the Greens initially had over Labour, for which they demanded as a condition of partnership, the formation of the RCGM.

In 2001, the Green Party had threatened to withdraw from their coalition with co-leader Fitzsimons stating that the party "would not tolerate its continuing to back the Coalition if it took the country down the 'GE road'." The National Party offered to relieve the Labour Government from its dependence on the Greens for support if it decides to implement the commission recommendations, which support field trials of GM crops under strict controls and dismiss a GM free New Zealand as impractical. When the National Party's environment spokesman, Nick Smith, said the party was willing to "work constructively" with the Government to prevent a continued ban on gene research outside the laboratory (NZ Herald, Oct 18 2001). Green Party's position also prompted a response from the most unlikely of parties. Portraying himself in the role of a white knight, NZ First party leader Winston Peters "offered to talk to the Coalition about his party's helping it on confidence and supply by abstaining from voting on these issues, leaving it with a majority in the House. He said the offer was made in an attempt to avoid political instability in a time of international and economic uncertainty created by the war against terrorism (NZ Herald, OCT 19, 2001)." Even the Employers and Manufacturers Association complained, "New Zealand cannot afford to be held ransom by a minority of MPs." "The decision due this week must be the Government's view, not one based on opinion polling, or keeping the Green Party on side," said Alasdair Thompson EMA chief

executive, “The recommendations of the Royal Commission on Genetic Modification were extremely well researched and should be implemented by Parliament in full”. Adding “Government was elected to govern, not to be held ransom by a minority party determined to get control over NZ’s science programme (NZ Herald, OCT 28 2001).”

As the Greens “threatening to ‘pull the plug’ on the Coalition and while New Zealand First did not support some of the Government’s policies, it would be prepared to contribute towards continued security” (ibid). These offers effectively neutralized the leverage that the Greens had when they threatened to withdraw support, giving Labour the cart-blanche to act without regard for their coalition ally the Greens. This has the effect of removing the Greens from being a veto player. However weak a player they were prior to this development given the small number of seats under its control, this development just turned their support for confidence-in-supply on this issue from insignificant to irrelevant. With the addition of these players, Labour has obtained the necessary support in Parliament without the fear of facing a non-confidence vote.

In order to extract concessions from veto players and persuade them to agree to any legislative changes initiators (those wanting change) have to appeal to the players self-interests by enticing them. In other words, the Greens had to have a “carrot-and-stick” approach which will only work if they can entice Labour with the “carrot” preferably with the “stick” available to deliver punitive actions. This was not the case; the Greens lost its “stick” when other political parties expressed their willingness to support the government on this issue effectively neutralizing any threat posed by the Greens in

destabilizing the government. Nor did they have any “carrots” to offer in return for Labour moving its policy on GM. The fact that it is a junior party and was not in power meant that it could not offer any benefits to entice legislative cooperation from Labour.

To illustrate how this mechanism works in real life, Tsebelis points out that in the examination of US pork barrel legislation (by Ferejohn 1974,Cohen and Noll, 1991, in Tsebelis, 2002) for instance, researchers found that the diffused costs and targeted benefits of geographically focused projects make it attractive for individual congressmen to propose them in spite of their inefficiency. The omnibus approach then is a prerequisite as bills that include all such projects get adopted all together thus not leaving any district to lose out in funding. Tsebelis (ibid) argues that should a president veto such a project for obvious fiscal reasons and inefficiency, Congress can counteract such vetoes by expanding the coalition and “making it veto proof” by including the pet projects of two-thirds of the legislators of each chamber so as to garner their support. In the NZ case, because of our Westminster-form of government and constitutional arrangement, the executive by virtue of a majority in the legislature (by implication the executive can only be in government if they control or have sufficient support in the legislative branch) controls both branches of government, thereby preventing such a scenario form arising. Because of this prerequisite, coalition governments are prone to instability and collapse if one of the governing partners threatens to pull out and withdraw support. This scenario forces minority governments to comply with the demands of the junior partners as non-compliance means facing the risk of a collapse.

Once the Labour government realized that it can rely on other parties outside of its coalition for legislative support the Green Party was no longer relevant as a player. With the inclusion of other parties willing to support the Labour government on their GM policy, the Greens' ability to extract concessions became significantly diminished. The party controlled 9 out of a potential 120 seats in the Parliament. In contrast, the top three parties controlled 92 out of 120 seats with Labour alone commanding almost half (52) of the 120 seats. Moreover, these parties support the RCGM's recommendation that "New Zealand should keep its options open with regard to genetic engineering and to proceed carefully in order to minimize and manage any risks" by seeking an extension on the moratorium. Just like in the US, by virtue of having an expanded coalition, the Labour party has made this issue "veto proof."

Other Institutional Players

The Courts

The Judiciary may in some circumstances affect the policymaking process. The anti-GE groups sought judicial injunction to stop GM field trials and its commercial release. However, under the doctrine of Parliamentary Sovereignty the legislature can and had passed legislations to give legal effect to any policies or actions that it sees fit.[19] As such, unlike the American system the judiciary in this case is not an "institutional" veto player within the New Zealand policymaking system, since it has not the power to alter or overturn legislative policy decision that the American Supreme Court possesses. As

[19] An interesting fact: This included legislating for a death of a live but mentally insane person for the purposes of facilitating the taking over of his estates by his heirs. Because at that time the legal provisions did not allow for the right to an estate to be passed on as long as the owner was still alive even though set person was deemed mentally incompetent.

Tsebelis (2002: 226) states, “what matters for the independence and significance of the judiciary is not the legal system of a country, but whether courts are constitutional or not and the difficulty of the political system to overrule a statutory interpretation.” Under the doctrine of parliamentary sovereignty, a legislative body has absolute sovereignty, meaning it is supreme to all other government institutions (including any executive or judicial bodies that may exist). Furthermore, that the legislative body may change or repeal any prior legislative acts. As the court puts it, “The constitutional position in New Zealand... is clear and unambiguous. Parliament is supreme and the function of the courts is to interpret the law as laid down by Parliament. The courts do not have a power to consider the validity of properly enacted laws” (*Rothmans of Pall Mall (NZ) Ltd v A-G* [1991] 2 NZLR 323 at 330 (HC)). In the case of genetic engineering, even if the courts find that the technology for some reason is highly illegal or unsafe, as long as the parliament passes a law allowing its use, the courts are powerless in stopping its use.

Unicameralism in New Zealand

The New Zealand Parliament consists of solely one chamber, the House of Representatives, with 120 seats. With NZ’s electoral system (Mix-Member-Proportional), a party has to win a constituency seat or gain 5% or more of the total party vote (which is different to the constituency vote) in order to gain representation in parliament. To form a government, a party has to retain majority support in the House of Representative or secure enough support from other political parties to achieve a majority. This majority is essential for passing legislation and surviving a confidence vote.

This is a phenomenon unique to NZ (with Israel being the only other Western democracy with similar unicameral system). Traditionally, legislature in liberal western democracies is divided into two chambers, widely known as an upper house and a lower house. This bicameral structure was abolished in New Zealand with the removal of the upper house- the Legislative Council- in 1951. The principal advantage of a unicameral system is more efficient lawmaking, as the legislative process is much simpler and there is no possibility of legislative deadlock. Proponents of unicameralism have also argued that it reduces costs, as even if the number of legislators is the same as it would be in a multicameral system, there are fewer institutions to maintain and support. From the standpoint of Veto Player Theory, one of the natural concomittants of bicameralism is an increase in the number of veto players in the decision making process. A by-product of such a structure is that it results in lowering the likelihood of a policy change that differs too much from the status quo. For example, should the two houses be controlled by different parties or even by the same party, legislative approval for change is not assured. Thus, a further observation made by scholars in relation to the presence of a second chamber: the reduction of the potential power of the leader or "agenda setter" (see Tsebelis and Money 1997:36). They suggest that even where there is a strong majority in the lower legislature, it can do little to alter the policy status quo if the second chamber comes to the conclusion that it is not in the best interests of the electorate to do so.

Thus, the corollary of unicameralism in relation to bicameralism is that policy changes are easier to take place since one layer of the legislature has been removed. However, since NZ has a unicameral legislature, the lack of an upper chamber is not the reason for GM legislative change or lack thereof.

Veto Player Theory

Partisan veto players within a parliamentary system where party discipline is strong are considered as singular units within the veto player platform. The theory states that changes from status quo require unanimous agreement from the partisan veto players since these parties have the de facto right of veto. The Labour Party did not require support from the Greens as part of the minimum-winning coalition to form a government because other parties were willing to back Labour on the issue of genetic engineering. The threat of destabilizing a Labour-led government by the Green Party was thwarted. In short, this lack of political leverage meant the Green Party was not a partisan veto player. This meant that whilst Labour remained a partisan veto player as the single biggest party whose consent was needed to for policy change; the Green Party could not obtain the necessary compliance on the part of Labour because of its junior position due to the lack of political leverage. The Green Party was surplus to requirement from Labour's perspective since it needed not the Green Party's support to maintain stability and be in power. All this because the policy points of Labour and the Green Party were too far apart. In several scenarios of coalitions consisting of various other political parties, I was able to show their policy stance (ideal policy points) on genetic engineering were similar or in close approximation to Labour's. Thus, these parties served to reinforce Labour's policy on genetic engineering, making the likely for change ever harder. Once it was clear that the policy positions of all the political parties were similar to that of Labour's and the more they overlap on this point the harder it was to change that policy as the inclusion of more partisan veto players meant that policy change for genetic engineering will not occur and that status quo will be preserved.

CHAPTER 5

Summary & Conclusion

Introduction

The raison d'être of this study can be traced back to when I asked the question: Why are some issues more prominent than others? Why did genetic engineering and its government policy received so much public attention and dominate the media in the course of its policymaking process; whilst an equally relevant technology- nanotechnology- receive little media attention and almost no public discourse? Thus, the aim of this thesis is to examine the relationship between the agenda setting process and the New Zealand policymaking process- an area which had previously received limited attention. Using a combination of quantitative data and qualitative methodology this study seeks to explain the agenda setting process, and its effects upon policymaking within the New Zealand context.

Literature

Two main aspects of relevant literature were addressed in this research to establish the theoretical framework for exploring agenda setting and policy change. Firstly, to provide context for the relationship between public participation through agenda setting and policy change. Secondly, the interaction between political parties and policy changes, more specifically, the effects of the interaction between veto players and how it affects policy change. Thus, it can be observed that there exists a "two-track" system in relation to policy change.

Agenda Setting Theory

As previously discussed in the first part of Chapter 2, the reason some issues are more prominent than other is because some issues are picked up and expanded whilst others are contained due to the lack of conflict amongst the interested parties. Interest groups and policymakers redefine political issues to attract and repel potential participants. Since "nothing attracts a crowd like a fight", the losers in a policy debate will expand the conflict to increase the number of relevant players in a debate causing the policymaking to get beyond the control of the bureaucratic circle and tilt the debate in their favour, thus altering the policy. In short, policy changes take place when there is conflict as a result of issue expansion. For a three-year period from 2001 to 2003, New Zealand anti-GE activist-groups were extremely active in highlighting the issue, framing the debate and expanding the numbers of domestic participants. As a result, they succeeded in influencing the public debate on GE. Inversely, nanotechnology- another technology- managed to remain under the media's radar and out of public consciousness. The result of issue contraction is the lack of public debate and no prospect of an issue spinning out of the policymakers' control.

Veto Player Theory

As mentioned, veto players are actors with the right to veto policy change. Their acceptance of a policy change away from the status quo is a prerequisite for change to take place. The only time a policy change takes place is when all the veto players are in agreement for change. For that to take place the proposed changes have to fall within what is acceptable in relation to their own preferred policy. Thus this is a paradigm shift

away from the traditional pair wise comparative of left versus right; or presidential versus parliamentary. Accordingly, Veto Player Theory provides a level of analysis on the policymaking process that transcends political systems. In order to explain and predict policy change this study examined the policy positions of various New Zealand political parties. This approach is arguably more accurate and incisive since the level of analysis is focused solely on the political parties whose participation is crucial as opposed to lower level participants. There is also parsimony in this approach as when conducting analysis at this level other factors such as the public sentiment and media framing become surplus to requirement.

Analysis

As discussed previously, this study implemented a nominal statistical approach to examine the policymaking process. Chapter 3 set out the methodology to explain the operationalisation of the variables, such as details and method for extracting data. Chapter 4 detailed the results from the statistical data of the case studies and as well as the results in the form of policy outcomes to derive a conclusion. I described the relationships between players, consisting of various anti-GE interest groups and pro-GM business lobbies. The efforts of the anti-GM lobby were successful in courting media attention, making it arguably the most prominent topic in the mass media, which in turn attracted even more popular support. With issue expansion, came negative media coverage and popular support against GM. Inversely, media coverage for Nano-molecular technology was almost non-existent with no visible public opposition to its use. Needless to say, policy change for NMT did not take place. Despite this contrast in their agenda

setting process, the GM status quo remained with the government refusing to bow to public pressure.

Using Veto Player Theory I seek to explain why policy changes did not take place, in doing so I exposed the inadequacy of agenda setting theory in explaining the legislative policy outcome of GM in New Zealand. This highlights an area of research that deserves greater attention. Although the topic of this thesis stemmed from the question of why some issues are more prominent than others. It had also highlighted to me the potential relationship between two relatively unexplored theories, especially their application to New Zealand's policymaking context. This examination of the relationship between the two theories is exploratory in nature. While agenda setting and its effect on policy change has received some attention in the literature, its interaction to Veto Player Theory is very limited. As such, a major part of the focus of this thesis became exploring the relationship between the two theories. This focus was encompassed in the guiding research questions of this thesis, which firstly aimed at addressing agenda setting and policy change in New Zealand; Veto Player Theory's effect on policy change and the relationship between agenda setting and Veto Player Theory.

Caveats, Limitations and Suggestions for future research

As pointed out in the previous chapters, I have encountered several limitations over the course of this study. Because of budgetary and time constraints the source of data is derived from a single source- the online archive of a major newspaper. In order to gain a more accurate portrayal and therefore a better understanding of agenda setting in the

media, a wider sample of media sources would be ideal to test my hypothesis as this would add accuracy to my data. In other words, a bigger research sample size would increase the validity of the research and the accuracies of my findings. In testing hypothesis 1.2, the sample collected was far smaller than anticipated. Due to the lack of coverage given the novel nature of nanotechnology, it was hard to generate a larger sample size of data. As such, I had to increase the time frame from 3 years to 6 years of newspaper coverage which is 3 years more than the coverage for genetic engineering in order to generate a meaningful amount of data for analysis. Nevertheless, the amount of data collected was sufficient for me to conduct my analysis.

In addition, the data would benefit from more sources to increase its validity. Using more sources of media as opposed to just one medium would provide a more accurate reflection of agenda setting in the media. This requires looking at multiple data source such as newspaper articles, and other media sources. For both case studies, I had only examined newspaper articles to derive my data. The exploratory nature of this thesis means the results of this study are preliminary and warrant further research for reasons mentioned above. Moreover, my findings with regards to the theory of agenda setting may benefit from further testing. A further expansion of this study would benefit the theoretical framework of this study. Converting this into a macro-comparative study would test the validity of this finding. The micro-comparative (intra-country) nature of this study does not allow for the findings to apply to other countries. The only approach is to conduct a cross-country study to test the “universality” of my findings and to do so

for a sufficiently big number of countries. Such a macro-comparative study, however, requires an immense effort in terms of data collection.

Conclusion

The results of this study highlight some inadequacies of Agenda Setting Theory, more specifically, the lack of policy change in lieu of issue expansion- going against the prevailing sentiment that issue expansion leads to policy changes. After a detailed analysis of the data that this study has produced, in relation to the discussion of the theoretical framework concerning agenda setting and Veto Player Theory on policy change, it is found that Veto Player Theory is a better model to predict and explain policy changes. By examining Veto Players and their relative position on a policy issue, an accurate prediction on the likelihood of policy change can be made.

According to Agenda Setting Theory, generalization (issue expansion) leads to mobilization which results in an increase in the number of players which in turn leads to policy change; Veto Player Theory claims that the more *veto players* involved in the process the harder it is for policy change to take place. The key distinction being the type of actors, with the actors in VPT being *veto players*, whose support is vital, as opposed to just any actors wanting to get involved in the policy process. Thus, the nature and the definitions of the term "player" in both theories are markedly different. On one level, agenda setting theory states that the more the number of participants in the policymaking process the more unlikely it is for a change in status quo. However, Veto Players claims that the higher the number of players the least likely change will take place. Although the

“players” in the agenda setting context simply refer to the number of participants interested in the debate; whereas “veto players” refer to the parties whose agreement in essential to any policy changes, without which no policy formulation is possible. Thus, there appears to be a “two-track” system, in which both types of “players” exist in parallel to one another. This “two-track” system appears to have a winner- in this case- the players at the highest level are winning the race to influence policy change. However, if these players (political parties) continue to remain oblivious to the electorate’s demands in the face of prevailing public sentiment for change to take place, such as the demand for change in legislative policy, then these political parties risk alienating the public and causing voter disillusionment.

APPENDIX I:

2001 GM Data

Date	GM Mentions	Article Wordcount	Positive Statements	Negative Statements	Neutral Statements	Total Statements	Value
3/03/2001	9	518	0	2	3	5	-1
9/03/2001	3	1365	0	2	0	2	-1
12/03/2001	3	277	0	3	1	4	-2
20/3/2001	3	740	0	5	2	7	-2
31/3/2001	14	710	2	5	1	8	-1
5/03/2001	4	264	1	1	3	5	0
5/04/2001	3	10224	3	0	1	4	1
(ii)	8	368	0	4	1	5	-2
(iii)	5	595	5	2	0	7	1
5/05/2001	9	751	4	0	3	7	2
(ii)	3	593	3	2	1	6	1
5/06/2001	6	253	0	3	1	4	-1
5/07/2001	9	686	4	0	1	5	2
5/07/2001	5	605	2	0	3	5	1
5/08/2001	2	383	0	2	1	3	-1
(ii)	5	317	0	1	2	3	0
5/09/2001	5	403	2	0	2	4	0
19/5/2001	11	411	0	5	1	6	-1
22/5/2001	10	754	0	0	4	4	0
25/5/2001	2	114	1	0	1	2	1
26/5/2001	4	280	1	2	2	5	0
14/6/2001	8	115	1	2	1	4	0
15/6/2001	7	1323	5	0	2	7	2
30/6/2001	1	1549	1	0	0	1	0
31/7/2001	11	818	2	0	5	7	1
(ii)	2	268	4	0	1	5	1
(iii)	9	859	2	3	6	11	-1
(iv)	28	1287	3	3	1	7	0
(v)	22	1189	6	6	0	12	0
(vi)	7	903	4	1	1	6	1
9/01/2001	6	315	0	3	1	4	-1
9/03/2001	11	507	0	5	0	5	-2
(ii)	4	313	5	0	1	6	1
4/9//2001	16	701	4	0	1	5	1
9/06/2001	23	705	0	9	0	9	-1
9/09/2001	5	307	1	2	1	4	-1
26/9/2001	4	561	3	1	1	5	1
29/9/2001	22	1408	6	0	2	8	2
10/01/2001	27	1180	2	0	1	3	1
10/02/2001	10	858	2	0	1	3	1
(ii)	19	571	0	6	0	6	-2
10/05/2001	21	1123	10	0	0	10	2
10/06/2001	18	568	2	2	0	4	0
10/11/2001	21	782	0	2	2	4	-1
(ii)	15	1091	1	0	4	5	0
(iii)	26	893	0	4	0	4	-2

16/10/2001	16	642	0	1	2	3	0
17/10/2001	12	671	1	2	0	3	1
(ii)	11	679	1	0	2	3	1
(iii)	1	196	0	0	1	1	0
18/10/2001	15	541	0	1	3	4	0
(ii)	5	473	0	4	1	5	-1
19/10/2001	8	642	0	3	2	5	-1
20/10/2001	4	161	1	1	1	3	0
(ii)	5	1048	1	1	1	3	0
(iii)	11	1000	3	2	1	6	1
23/10/2001	9	637	4	1	1	6	1
25/10/2001	2	383	0	2	1	3	-1
(ii)	2	161	0	0	2	2	0
27/10/2001	7	325	2	3	1	6	-1
(ii)	18	1695	7	3	0	10	2
(iii)	14	1682	1	4	3	8	-1
28/10/2001	5	259	3	0	2	5	1
29/10/2001	9	380	0	0	2	2	0
(ii)	9	524	0	0	1	1	0
(iii)	5	237	2	0	2	4	0
30/10/2001	13	649	2	1	2	5	1
(ii)	6	473	0	0	4	4	0
(iii)	9	1368	1	0	4	5	0
(iv)	5	360	1	1	2	4	0
31/10/2001	8	527	0	0	2	2	0
(ii)	7	226	0	2	1	3	-1
(iii)	18	1111	3	1	2	6	1
(iv)	5	350	2	1	0	3	1
(v)	6	548	0	1	1	2	0
(vi)	12	861	3	2	3	8	0
(vii)	10	465	3	3	0	6	0
11/01/2001	5	438	0	1	1	2	0
(ii)	11	706	0	6	0	6	-1
(iii)	6	310	0	2	1	3	-1
(iv)	3	215	0	1	2	3	0
(v)	5	353	0	0	2	2	0
(vi)	43	1299	7	1	1	9	2
11/02/2001	12	664	2	0	1	3	1
(ii)	7	439	0	0	2	2	0
(iii)	10	372	0	2	2	4	-1
11/03/2001	2	771	2	0	1	3	1
11/08/2001	8	801	3	0	0	3	1
11/09/2001	5	812	0	3	0	3	-1
21/11/2001	7	234	0	2	1	3	-1
(ii)	32	824	0	3	2	5	-1
23/11/2001	10	1151	5	0	1	6	2
24/11/2001	8	654	0	2	1	3	-1
Total		70122					

GM 2002 Data

Date	GM Mentions	Article Wordcount	Positive Statements	Negative Statements	Neutral Statements	Total Statements	Article Value
5/01/2002	13	406	2	0	2	4	1
11/01/2002	11	490	3	1	3	7	1
12/01/2002	4	522	0	4	1	5	-1
14/1/2002	4	321	2	1	0	3	1
16/1/2002	6	698	1	0	1	2	1
17/1/2002	4	223	0	2	1	3	-1
18/1/2002	13	1077	0	4	0	4	-2
19/1/2002	16	1587	0	0	0	0	0
23/1/2002	2	354	3	1	1	5	1
25/1/2002	17	979	0	0	4	4	0
1/02/2002	9	489	1	0	2	3	2
5/02/2002	2	482	0	0	2	2	0
14/2/2002	4	382	2	0	0	2	1
16/2/2002	13	690	2	0	1	3	1
3/05/2002	11	537	4	1	1	6	2
3/06/2002	8	610	2	0	2	4	1
18/3/2002	23	637	0	0	2	2	0
22/3/2002	2	35	0	1	0	1	-1
23/3/2002	10	460	2	0	0	2	2
29/3/2002	10	527	0	2	1	3	-1
2/04/2002	16	1008	0	0	2	2	0
3/04/2002	9	344	3	0	0	3	1
5/04/2002	17	472	0	0	2	2	0
17/4/2002	6	265	0	0	2	2	0
18/4/2002	12	649	1	0	2	3	0
1/05/2002	3	779	2	0	0	2	1
(ii)	9	395	1	1	0	2	0
3/05/2002	3	535	2	0	1	3	1
15/5/2002	19	597	0	0	1	1	0
22/5/2002	4	219	0	2	0	2	-1
23/5/2002	9	710	2	3	0	5	-1
24/5/2002	2	50	2	0	0	2	2
27/5/2002	9	675	0	2	0	2	-1
28/5/2002	7	576	0	2	1	3	-1
29/5/2002	3	334	0	2	0	2	-1
(ii)	13	1786	1	5	0	6	-2
6/02/2002	4	364	0	2	1	3	-1
6/03/2002	6	593	0	2	0	2	-1
6/04/2002	3	541	0	1	1	2	0
6/07/2002	4	521	0	1	3	4	0
6/10/2002	5	773	0	0	2	2	0
6/11/2002	7	771	0	2	1	3	-1
13/6/2002	1	202	2	0	0	2	1
21/6/2002	20	419	0	2	1	3	-1
(ii)	3	158	0	1	1	2	0
22/6/2002	11	316	0	0	2	2	0
23/6/2002	3	86	0	1	1	2	-1
27/6/2002	9	371	2	0	1	3	1

28/6/2002	9	440	0	2	2	4	-1
30/6/2002	2	424	0	0	2	2	0
(ii)	8	728	0	1	2	3	0
7/01/2002	3	355	0	2	0	2	-1
(ii)	5	364	0	1	1	2	0
7/02/2002	5	575	0	0	1	1	0
(ii)	3	628	0	1	2	3	0
7/03/2002	12	456	0	2	1	3	-1
(ii)	19	930	0	4	1	5	-1
7/04/2002	13	289	0	0	1	1	0
(ii)	1	398	0	1	1	2	0
(iii)	2	482	0	1	1	2	0
7/08/2002	11	343	0	0	1	1	0
(ii)	30	873	2	0	1	3	2
(iii)	24	1006	1	4	0	5	-2
(iv)	30	1218	1	0	2	3	0
(v)	18	429	0	0	2	2	0
7/09/2002	6	693	1	0	2	3	0
(ii)	13	509	0	1	1	2	0
(iii)	9	525	0	1	1	2	0
7/10/2002	38	1429	1	1	2	4	0
(ii)	8	368	0	0	2	2	0
(iii)	10	440	0	2	1	3	-1
7/11/2002	32	1473	0	3	1	4	-1
(ii)	19	809	0	3	0	3	-1
(iii)	16	350	0	2	1	3	-1
(iv)	7	749	0	1	0	1	-1
(v)	7	298	0	0	2	2	0
7/12/2002	5	1011	0	2	0	2	-1
(ii)	12	588	0	0	2	2	0
(iii)	15	975	0	0	2	2	0
(iv)	4	481	0	0	1	1	0
13/7/2002	30	2257	0	0	3	3	0
(ii)	7	650	0	1	1	2	-1
(iii)	9	515	0	1	2	3	0
16/7/2002	24	875	0	0	3	3	0
(ii)	9	1052	2	0	1	3	1
(iii)	11	488	0	1	1	2	0
17/7/2002	7	451	0	1	1	2	0
18/7/2002	39	748	0	2	1	3	-1
(ii)	8	872	0	2	1	3	-1
(iii)	4	564	1	1	1	3	0
19/7/2002	3	667	1	1	1	3	0
(ii)	6	1025	0	2	1	3	0
22/7/2002	14	631	3	0	0	3	1
23/7/2002	6	515	0	0	1	1	0
24/7/2002	4	576	1	0	0	1	1
25/7/2002	8	725	0	1	2	3	-1
26/7/2002	11	433	0	0	2	2	0
30/7/2002	14	1572	2	0	1	3	1
(ii)	3	245	0	0	1	1	0
8/01/2002	16	603	0	0	2	2	0

8/07/2002	12	382	1	1	1	3	-1
8/08/2002	3	348	0	0	1	1	0
(ii)	5	483	0	0	1	1	0
(iii)	2	237	0	1	0	1	-1
8/09/2002	8	1298	0	1	1	2	0
(ii)	10	697	0	1	1	2	-1
8/10/2002	4	225	0	0	1	1	0
(ii)	16	635	0	1	2	3	0
8/12/2002	13	379	0	2	0	2	-1
(ii)	2	416	0	0	1	1	0
13/8/2002	13	376	1	2	0	3	-1
(ii)	9	366	0	1	1	2	-1
(iii)	31	1129	1	2	2	5	0
14/8/2002	21	450	1	1	0	2	0
15/8/2002	9	436	0	2	1	3	-1
16/8/2002	10	265	1	2	0	3	-1
(ii)	7	433	0	0	2	2	0
17/8/2002	13	659	0	2	1	3	-1
18/8/2002	42	1602	0	3	2	5	-1
22/8/2002	7	302	0	1	2	3	0
23/8/2002	20	439	0	1	2	3	0
24/8/2002	3	269	0	0	1	1	0
26/8/2002	11	387	0	0	2	2	0
27/8/2002	2	642	0	0	1	1	0
28/8/2002	6	665	1	0	0	1	1
30/8/2002	1	155	0	0	1	1	0
(ii)	9	440	0	0	2	2	0
9/02/2002	1	361	0	0	2	2	0
9/04/2002	2	395	0	0	1	1	0
9/09/2002	9	500	1	0	1	2	0
14/9/2002	6	154	0	0	2	2	0
17/9/2002	6	200	2	0	0	2	1
20/9/2002	2	557	0	0	1	1	0
23/9/2002	18	841	1	3	0	4	-1
24/9/2002	9	997	0	3	0	3	-1
27/9/2002	28	1183	0	0	2	2	0
(ii)	12	518	0	2	1	3	-1
10/01/2002	17	427	1	2	1	4	0
(ii)	3	619	0	0	2	2	0
(iii)	37	1182	1	0	2	3	0
10/02/2002	19	674	1	1	1	3	0
10/03/2002	26	811	0	4	0	4	-1
(ii)	28	911	0	0	3	3	0
10/04/2002	12	476	0	0	2	2	0
10/05/2002	40	1655	2	2	2	6	0
23/10/2002	2	257	0	0	1	1	0
11/08/2002	7	226	0	0	2	2	0
13/11//2002	15	550	2	0	1	3	1
(ii)	8	287	2	0	1	3	2
16/11/2002	5	150	0	2	0	2	-1
18/11/2002	7	200	0	2	0	2	-1
19/11/2002	12	524	1	1	2	4	0

14/11/2002	3	224	1	0	1	2	1
10/12/2002	8	450	2	0	1	3	1
(ii)	3	259	0	0	1	1	0
20/12/2002	13	332	2	0	0	2	1
(ii)	3	383	0	2	0	2	-1
27/12/2002	12	443	0	0	2	2	0
28/12/2002	12	639	2	0	0	2	1
29/12/2002	17	464	0	2	0	2	-2
Total	1719	94079					

2003 GM Data

Date	GM Mentions	Article Wordcount	Positive Statements	Negative Statements	Neutral Statements	Total Statements	Value
3/01/03	20	671	0	3	02	5	-1
4/01/03	25	1024	2	1	1	4	1
7/01/03	33	906	1	2	0	3	0
15/01/03	10	308	1	2	0	3	0
(ii)	6	275	1	3	0	4	-1
(iii)	6	614	1	5	0	6	-2
16/1/03	6	307	3	0	0	3	2
17/1/03	10	580	3	0	0	3	2
20/01/03	9	332	3	0	1	4	2
23/01/03	6	230	0	0	1	1	0
28/01/03	6	307	2	0	0	2	1
29/01/03	5	220	0	1	2	3	0
2/10/03	10	719	3	0	0	3	2
13/02/03	20	838	0	3	2	5	-1
20/02/03	13	1538	3	0	1	4	1
24/02/03	2	167	1	0	1	2	0
25/02/03	7	288	0	0	3	3	0
27/02/03	1	882	1	0	0	1	1
3/05/03	18	632	1	1	1	3	0
3/10/03	0	450	0	1	2	3	0
15/03/03	2	378	3	0	0	3	2
17/03/03	13	519	1	1	1	3	0
31/03/03	11	1244	1	0	1	2	1
4/02/03	12	368	3	0	1	4	1
4/03/03	4	317	0	1	1	2	0
4/10/03	2	326	0	2	0	2	-1
4/11/03	16	315	0	0	2	2	0
16/04/03	2	181	0	0	1	1	0
17/04/03	16	333	0	2	0	2	-1
17/04/03 (2)	27	656	0	3	1	4	-1
17/04/03 (3)	14	582	0	1	3	4	-1
18/04/03	11	386	0	3	1	4	-1
18/04/03 (2)	10	459	0	2	0	2	-1
19/04/03	11	366	1	3	1	5	-1
19/04/03 (2)	5	103	0	1	1	2	-1
20/04/03	19	1863	2	1	0	3	1
21/04/03	4	139	0	0	1	1	0
22/04/03	5	318	1	2	1	4	-1
5/05/03	22	898	2	4	0	6	-2
5/06/03	1	883	2	0	2	4	0
5/07/03	3	283	0	0	2	2	0
15/05/03	13	102	0	2	2	4	0
17/05/03	5	2022	2	0	0	2	2
19/5/03	7	189	0	1	1	2	0
21/5/03	4	240	2	0	0	2	1

21/5/03	7	452	1	1	0	2	0
26/5/03	2	397	2	0	1	3	1
26/5/03 (2)	15	1520	0	2	2	4	0
28/5/03	2	53	0	0	2	2	0
31/5/03	5	311	0	3	0	3	-2
6/02/03	7	510	0	0	1	1	0
2/6/03 (2)	40	1465	0	5	1	6	-2
6/03/03	14	572	0	4	0	4	-1
6/05/03	15	429	0	1	1	2	-1
6/09/03	8	765	0	0	2	2	0
6/11/03	7	457	0	2	0	2	-1
6/12/03	4	435	0	1	1	2	0
12/6/03 (2)	9	435	0	0	2	2	0
13/06/03	3	467	0	1	2	3	-1
19/6/03	8	176	0	1	1	2	-1
19/6/03 (2)	14	301	0	3	0	3	-1
20/6/03	11	1102	1	2	1	4	-1
20/6/03 (2)	20	1202	1	7	1	9	-2
21/6/03	5	417	0	0	1	1	0
22/6/03	5	503	2	2	0	4	1
22/6/03 (2)	19	925	2	2	1	5	0
23/6/03	6	193	0	2	0	2	-1
23/6/03 (2)	3	140	0	2	1	3	-1
23/6/03 (3)	27	785	0	3	0	3	-2
24/6/03	5	380	0	1	2	3	-1
25/6/03	2	127	0	1	0	1	-1
25/6/03 (2)	6	423	0	4	1	5	-1
25/6/03 (3)	7	428	1	0	1	2	0
2/07/03	4	511	0	4	0	4	-1
5/07/03	39	848	1	0	4	5	0
(ii)	22	997	0	2	1	3	-1
7/08/03	5	618	0	0	2	2	0
(ii)	18	737	0	4	2	6	-2
7/08/03	6	462	0	1	2	3	0
7/10/03	12	294	0	1	1	2	0
(ii)	2	548	0	0	1	1	0
7/12/03	9	414	0	2	1	3	-1
14/7/03	12	772	0	4	1	5	-2
24/7/03	22	525	0	3	0	3	-2
25/7/03	4	276	0	1	0	1	-1
26/7/03	8	479	1	0	1	2	0
28/7/03	8	456	0	3	0	3	-1
(ii)	3	469	1	0	0	1	1
29/7/03	10	251	0	2	0	2	-1
8/01/03	6	334	2	0	0	2	2
8/07/03	12	540	0	2	0	2	-2
(ii)	5	344	0	0	2	2	0
8/08/03	11	761	0	2	1	3	-1
14/8/03	13	263	1	0	1	2	1
16/8/03	3	125	0	2	0	2	-1
18/8/03	4	395	0	0	1	1	0
19/8/03	14	384	0	1	3	4	0

(ii)	14	841	0	2	1	3	-1
(iii)	11	604	0	0	2	2	0
22/8/03	4	359	1	1	1	3	0
23/8/03	21	577	0	2	0	2	-1
(ii)	4	626	0	0	2	2	0
(iii)	15	615	0	2	3	5	-1
(iv)	44	766	0	0	1	1	0
(v)	27	679	0	0	2	2	0
(vi)	46	2267	1	8	3	12	-2
(vii)	12	325	0	0	1	1	0
(viii)	26	767	1	3	0	4	-1
25/8/03	24	1192	0	2	0	2	-1
(ii)	31	1017	1	8	0	9	-2
(iii)	8	624	0	1	2	3	0
26/8/03	29	804	0	6	0	6	-2
(ii)	17	633	1	3	1	5	-1
27/8/03	29	1171	0	3	0	3	-2
(ii)	15	608	0	3	1	4	-1
28/8/03	2	119	0	1	0	1	-1
(ii)	1	608	0	1	0	1	-1
(iii)	15	400	0	2	1	3	-1
(iv)	34	1191	3	0	1	4	1
(v)	6	162	0	1	1	2	-1
29/8/03	8	665	0	0	1	1	0
(ii)	4	862	1	0	1	2	1
(iii)	21	946	3	0	1	4	1
(iv)	4	131	1	0	0	1	1
9/02/03	17	615	0	2	1	3	-1
(ii)	5	728	0	1	1	2	-1
(iii)	2		0	1	0	1	-1
9/03/03	6	653	0	1	1	2	-1
9/04/03	5	336	0	1	1	2	-1
(ii)	7	366	0	2	1	3	-1
9/06/03	8	1029	0	0	2	2	0
9/09/03	6	318	0	2	1	3	-1
9/11/03	5	419	0	2	0	2	-1
9/12/03	5	288	0	2	0	2	-1
13/9/03	3	81	0	1	0	1	-1
15/09/03	5	404	2	0	1	3	1
16/09/03	18	481	0	3	0	3	-1
22/09/03	3	172	0	0	2	2	0
(ii)	15	491	0	2	1	3	-1
23/09/03	7	375	0	1	1	2	0
25/09/03	16	403	0	3	1	4	-2
26/09/03	22	552	0	3	0	3	-1
27/09/03	15	520	0	1	1	2	-1
30/09/03	9	837	1	0	2	3	1
(ii)	6	357	2	1	1	4	1
10/01/03	2	263	0	2	0	2	-1
(ii)	5	228	0	0	2	2	0
10/02/03	9	265	0	1	1	2	-1
10/03/03	4	210	0	2	0	2	-1

10/06/03	15	375	0	4	0	4	-2
(ii)	3	248	0	2	1	3	-1
10/07/03	5	372	0	2	0	2	-1
(ii)	10	594	0	3	0	3	-2
10/10/03	16	762	0	3	3	6	-2
(ii)	7	439	0	4	0	4	-1
10/11/03	7	576	0	0	2	0	0
(ii)	7	432	0	5	0	5	-2
(iii)	14	471	0	6	0	6	-2
(iv)	12	434	0	3	0	3	-1
13/10/03	6	239	0	2	1	3	-1
14/10/03	7	1215	0	1	0	1	-1
(ii)	12	462	1	0	1	2	0
(iii)	18	891	0	2	0	2	-1
(iv)	17	473	1	0	1	2	0
16/10/03	6	235	0	2	0	2	-1
17/10/03	3	103	0	1	0	1	-1
(ii)	14	833	3	1	0	4	2
(iii)	25	968	0	4	0	4	-2
22/10/03	15	430	1	0	2	3	1
23/10/03	5	437	0	2	0	2	-1
(ii)	5	399	0	2	0	2	-1
24/10/03	20	1141	0	4	0	4	-2
(ii)	4	114	0	1	1	2	-1
25/10/03	15	518	2	0	2	4	0
26/10/03	8	373	2	0	1	3	1
(ii)	6	385	3	0	1	4	2
(iii)	16	587	0	3	0	3	-1
(iv)	40	1574	2	0	2	4	0
27/10/03	7	548	0	3	1	4	-1
(ii)	3	157	0	2	0	2	-1
28/10/03	24	1007	2	1	2	5	1
(ii)	10	472	0	1	2	3	0
(iii)	3	125	0	1	0	1	-1
29/10/03	23	886	0	6	0	6	-2
(ii)	3	217	0	0	1	1	0
(iii)	14	672	0	2	2	4	-1
(iv)	7	361	1	1	1	3	0
(v)	14	517	0	2	1	3	-1
30/10/03	4	434	0	0	1	1	0
(ii)	10	1015	0	0	2	2	0
(iii)	8	563	1	0	0	1	1
(iv)	15	434	0	0	1	1	0
(v)	24	933	0	4	1	5	-1
31/10/03	6	277	0	0	2	2	0
(ii)	8	193	0	0	1	1	0
		106101					

Appendix II

2003-09 Nanotechnology Data

Date	Nano Mentions	Article Wordcount	Positive Statements	Negative Statements	Neutral Statements	Total Statements	Value
25/03/2000	2	468	0	8	1	9	-2
1/03/2001	1	421	0	10	2	12	-2
14/02/02	2	1968	0	0	2	2	0
3/07/2002	2	848	0	0	2	2	0
10/03/2002	1	1500	1	0	3	4	0
2/08/2003	29	1849	17	2	1	20	2
12//02/03	12	607	8	0	2	10	2
20/06/03	1	836	0	0	2	2	0
15/09/03	6	323	3	1	1	5	1
28/11/03	1	593	1	0	0	1	0
19/02/2004	1	454	2	0	1	3	1
26/02/04	1	118	2	0	4	6	1
3/11/2004	3	437	4	0	1	5	2
4/06/2004	32	1112	8	0	4	12	2
6/09/2004	1	331	3	0	0	3	2
7/12/2004	2	112	0	2	1	3	-1
23/10/04	9	356	4	4	0	8	1
1/06/2005	3	1211	3	2	0	5	2
14/04/05	4	123	4	0	0	4	2
20/07/05	3	1057	2	0	0	2	1
8/03/2005	2	87	1	1	0	2	1
23/09/05	12	584	5	1	0	6	2
12/05/2005	3	199	1	0	1	2	1
12/08/2005	20	635	3	10	1	14	-2
27/05/06	47	1383	12	2	2	16	2
18/07/06	14	775	7	0	0	7	2
18/11/06	1	286	1	0	0	1	1
2/05/2007	1	1054	2	0	0	2	1
6/05/2007	1	184	4	0	0	4	1
7/01/2007	3	620	0	0	2	2	0
30//07/2007	1	175	1	0	0	1	1
8/06/2007	2	404	0	0	2	2	0
27/08/2007	2	542	2	0	0	2	1
31/08/2007	2	440	0	0	1	1	0
19/09/2007	8	498	2	0	0	2	2
23/09/2007	3	740	1	0	0	1	1
10/03/2007	4	173	1	0	0	1	1
10/10/2007	1	664	2	0	0	2	1
13/11/07	8	403	3	0	0	3	1
19/12/07	2	133	1	0	0	1	1
16/01/08	3	457	0	0	3	3	0
29/01/08	7	465	4	0	0	4	2
22/02/08	2	120	0	0	5	5	0
28/02/08	5	236	0	0	2	0	0
31/03/08	3	564	1	0	1	2	1
2/07/2009	24	1720	5	1	2	8	2

2/11/2009	6	1706	0	2	3	5	0
3/02/2009	1	3821	5	0	1	6	1
5/04/2009	2	378	2	0	1	3	1
21/06/2009	11	831	5	0	2	7	2
8/06/2009	6	198	2	0	2	4	0
28/8/09	1	906	4	0	0	4	2
Total		36105					

Appendix III

Examples of 2001 GM Data Excerpts

Full GM data excerpts are not included for practical reason. However physical copies of all articles will be made available upon request.

2001 Distrust and Polarisation in GE debate- Mar 03	Overall rating: Neg 1 Statements 3 Neutral • The battle lines have been drawn in the gene debate, creating a climate of "distrust and polarisation," New Zealand's environmental watchdog says.The comments, from the Parliamentary Commissioner for the Environment, Dr Morgan Williams, come as the Royal Commission on Genetic Modification winds up and prepares to write its report.Dr Williams told the commission this week there was a perception that "expert arrogance" on one side and "interest-group pressure" on the other had hardened attitudes in the debate.There must be far greater transparency and constructive dialogue than has been the case thus far," he said. • Over the past six months the four commissioners, charged by the Government to investigate where New Zealand should stand on the GE issue, have heard 47 days of sometimes mind-bogglingly complicated scientific evidence, along with pleas from animal rights and religious groups for consideration of moral and ethical issues.Before the commission are 11,000 public submissions, evidence from more than 300 experts, and comments from hundreds of people who attended 15 public meetings and 10 regional hui.Meanwhile, the pro- and anti-GE lobbies have gone head-to-head. • Some called for a relaxation of the rules on importing genetically engineered organisms, and university medical researchers in particular outlined the potential medical and agricultural benefits their work will bring. 2 Negatives • Broadly, Greenpeace, the Green Party, organic farmers, religious organisations and Maori have pleaded for caution. They argue that there are too many unknowns to allow genetically engineered organisms - anything from modified pine trees to calves injected with a human gene - to be released into the environment. They want strict containment until safety guarantees can be given. • Greenpeace spokeswoman Annette Cotter believed that the arguments put before the commission favoured a precautionary approach - in line with what Greenpeace wants.Commission chairman Sir Thomas Eichelbaum believes that public awareness of GE is low, despite constant publicity over the past year. "There are a lot of people who are very committed and passionately involved in the debate, but there are hundreds of thousands of others who ... have no idea what we are on about."

Europeans shows way to an organic future- Mar 09	Neg 1 2 Negatives • The organics industry has started to attract naysayers - albeit not violent ones - creating cautious optimism in the industry. Instead of being scoffed at for being the preserve of long-haired granola-munchers, Kiwi critics are now more likely to be backing genetic engineering - a scientific system that could eliminate pesticides from agricultural production but would virtually wipe out any hope of marketing Aotearoa as an organics sanctuary. • And overseas Governments have been pushed by strong antipathy towards the spectre of genetically engineered foods to ride the organics tidal wave.
Organic farmer offers rewards for GE protection bill- Mar 12	Neg 2 3 Negatives • Havelock North organic farmer and philanthropist Andrew Martin is waiting for an MP to take up his offer of $5000 to introduce a law that would force chemical companies to pay for damage caused by their genetically engineered crops. Mr Martin, who came to New Zealand with his biologist wife Heather from the United States six years ago, made the offer through newspaper advertisements at the weekend. • "We love New Zealand and we would hate to see it being used as a laboratory by multi-national chemical companies," Mr Martin said. "Genetic engineering could destroy New Zealand's reputation around the world as a clean country. It would be a disaster for New Zealand if we repeated the mistakes of the past, such as (chemicals) DDT and PCBs." • His bill would force chemical companies to take responsibility for any costs if genetically engineered crops damaged the health of New Zealanders, the environment, its reputation, agriculture, tourism or wildlife. 1 Neutral • Green Party co-leader Jeanette Fitzsimmons said while she applauded Mr Martin's commitment to a cause, a better way to get Parliament to legislate for liability would be to put the arguments to the Royal Commission on Genetic Engineering, which hears closing submissions this week.
GM strain taints mountains of stored corn across the US- Mar 20	Neg 2 5 Negatives • More than 430 million bushels of corn in storage around the United States have been contaminated with an unapproved genetically modified variety, resulting in a huge recall of chips, flour and other foods. That figure greatly increases the estimate of the amount of US corn inadvertently mixed with StarLink genetically modified variety prohibited from human foods. • The 430 million-bushel estimate dwarfs the amount of corn reported earlier from the 2000 crop as containing StarLink - about 50 million bushels grown by farmers licensed to use it and 20 million bushels from neighbouring fields. • The genetically modified protein in StarLink corn, called Cry9C, was barred by US regulators for human use because of concerns it might cause allergic reactions such as skin rashes, runny noses and flu-like symptoms. The discovery of the corn in taco shells last September triggered a recall of more than 300 snack chips, cornmeal and other US foods. The contamination occurred when farmers and grain elevators mixed StarLink with other corn varieties. • Farmers in Illinois, Iowa and Nebraska have sued Aventis, claiming that the contaminated corn cost them export business and pulled down the overall

	price of US corn. Japan, the biggest importer of US corn, virtually halted its purchases for weeks and continues to test shipments in an effort to detect contamination. Wichtrich said Aventis had already spent "tens of millions of dollars" to resolve the StarLink contamination. • "Unfortunately, as of right now, the answer is no - there will never be an 'end' as long as there is a zero tolerance for Cry9C in food." 2 Neutrals • The New Zealand Ministry of Health said none of the nearly 300 products identified as containing StarLink corn was available in this country. • At the elevator level, we have already rerouted 94 million bushels of corn commingled with StarLink corn and know of an additional 343 million bushels in storage that will be rerouted in the months to come," said John Wichtrich, general manager for Aventis CropScience, a unit of the Franco-German pharmaceutical company.
Monsanto-villain, or pioneer, Mar 31	Neg 1 5 Neg • But the company's efforts to give Mother Nature a hand have made it a villain to those who see biotechnology as a threat to the safety of food and the environment. Lawsuits and protests have dogged Monsanto's genetic seed work, and mounting financial pressures led the company last year to form Pharmacia in a merger with Pharmacia & Upjohn. • But as Monsanto presses ahead, global debate about the safety of genetically modified crops shows no signs of easing. Opposition to Monsanto has been particularly virulent in Europe, where GM crops have been snagged in the regulatory approval process for years and labelled "Franken-foods" by opponents. Two weeks ago, Italian police seized about 120 tonnes of maize suspected of being contaminated with unapproved genetically engineered material from Monsanto. • And in January, more than 1000 protesters stormed a Monsanto experimental farm in Brazil, yanking out GM corn and soybeans crops at Monsanto's experimental farm. • In New Zealand, activists boarded a ship to protest against the import of genetically engineered soya products. Though less vocal, US-based GM opponents are also active. Last week, protesters picketed Starbucks' annual meeting, demanding the company halt use of genetically modified soy and corn products and milk produced with bovine-growth hormones. Last year, protesters convinced McDonald's and other fast-food chains to stop using Monsanto's genetically modified potato, a product it has since shelved. • And while US wheat growers say they would welcome the production efficiencies they might gain from Monsanto's new GM wheat variety, they fear the loss of sales. "The name Monsanto has been made synonymous with everything bad and ugly about biotechnology," says Worldwatch Institute researcher Brian Halweil. • 1 Neutral • Genetically modified (GM) corn and soybeans have soared in popularity in the US farm belt since debuting in the mid-1990s. Last year, planting of Monsanto biotech seeds grew by more than 15 per cent. Monsanto is now seeking regulatory approval to introduce a Roundup Ready wheat seed to the market. Also in the pipeline are Roundup Ready rice and alfalfa seeds. More distant plans include GM plants that produce vaccines. 2 Positives • Long a leader in the revolutionary changes taking place in agriculture, Monsanto has become a hero to farmers by providing products that improve production of key crops such as corn, soybeans and cotton.

	• To hold market share, the company is reducing prices on its Roundup products and introducing new variations. But it is also putting an increasing reliance on expanding markets for its "Roundup Ready" crops, which are genetically transformed to resist the weedkiller, allowing farmers to kill weeds easily without damaging crops.
May 2001 Brakes put on genetic experiment, May 03	Neutral 1 Neg • The Environmental Risk Management Authority (Erma) was yesterday found to have not followed some of the proper steps in its decision-making process when considering whether or not to approve the experiment. Justices McGechan and Goddard said Erma had not stated the tests it applied in reaching its decision and ruled the agency must reconsider Agresearch's application for the experiments. 3 Neutral • Approval for a controversial experiment involving the transfer of copies of human genetic code into cows is to be reconsidered following a ruling by the High Court in Wellington. • The first "transgenic" cows – cows with human gene code in them - are due to be born next month. The experiment was based at AgResearch's Ruakura research station, just outside of Hamilton. • Justice McGechan said the appeal was the first against an Erma decision so was important from a legal perspective. But he said it was not about the rights or wrongs of genetic engineering from a moral or social standpoint, "... and persons interested only in those perspectives should look elsewhere." 1 Positive • The experiment could possibly produce proteins that may be used in the search for a treatment for multiple sclerosis.
Modern biotech industry looks for more tucker, May 04	Pos 1 3 Positives • Research, Science and Technology Minister Pete Hodgson said the Government's planned seed capital fund would help the industry. "Biotech is mostly a component of R&D (research and development) and is often the source of innovations with commercial potential. "Increasing, the supply of venture capital for early-stage commercial development is precisely what the Government's seed capital plans are designed to achieve," he said. • A positive environment, led by the Government, which recognised the value of science to the economy would encourage people into science-based careers and make it easier to retain and attract skilled workers, Mr Wevers said. "It's a general thing about confidence in the economy and about having a positive environment for science rather than a negative one." • Mr Wevers cited cattle and sheep genomes, pine trees and forest grass as areas fundamental to New Zealand's agricultural economy and in which we have a competitive advantage. "We've built up 150 years of scientific knowledge in those areas and that repository of knowledge is a huge advantage. "The future beckons very brightly, but at the same time we've got to make sure that we focus on those things that we're good at and that we extend beyond those areas with a great deal of care," Mr Wevers said. 1 Neutral • Mr Wevers said the voluntary moratorium on genetic engineering also had dampened the injection of capital. "Our hope is that once the royal commission reports, and the Government adopts whatever positive aspects the commission reports back, we'll see some leadership from the Government in this area." Government leadership would renew confidence in the biotechnology industry and help increase investment in it. Biotechnology Association chairman Selwyn Yorke attributes the dearth of money in the

	sector to crown research institutes, rather than by private companies, doing most of the work.
Hershey feels heat of GE war, May 4	Neg 2 4Negatives • SAN FRANCISCO - While biotechnology companies are getting used to opposition from environmentalists, a trend is emerging in the United States that opens a new front in the war on genetically modified foods. A group of Hershey Foods shareholders - concerned that the company is exposed to unnecessary financial risk by using food ingredients derived from genetically engineered materials - has taken its case to fellow shareholders at the company's annual meeting. "Our company is clearly exposed to unnecessary reputational and financial risks from the use of genetically engineered ingredients," said Michael Passoff, associate director of the corporate accountability programme at the San Francisco-based As You Sow Foundation. "These ingredients were made to sell herbicides and pesticides. They provide no financial benefit to Hershey shareholders and no nutritional benefit to consumers." • Concern over the financial risk posed by genetically engineered foods has increased since the massive recall of StarLink corn - a strain of genetically engineered corn not licensed for human consumption that contaminated more than 300 products. Before the recall, most food companies believed that genetically engineered products posed no financial risk to them. Yet the StarLink recall will cost over $US1 billion ($2.37 billion). Brand name damage will account for extra untold costs. • "The implications for Hershey are significant because it purchases large quantities of milk, corn and soy products, which all contain significant levels of genetically engineered content," said Mr Passoff. Hershey products are widely eaten by children. Because of parental concerns, baby food makers Heinz and Gerber have already pledged to remove genetically engineered ingredients from their products in response to worries over potential allergic reactions. • The Hershey group believes continued use of genetically engineered ingredients without improved testing and stricter regulation exposes shareholders to potential liability for health effects that may harm consumers of Hershey products. 1 Neutral • McDonald's, Frito Lay and Starbucks are just a few of the food companies that have responded to customer concerns and said they will phase out selected genetically engineered ingredients.
Pregnant gene cow face death sentence, May 4	Pos 1 5 Positive • Scientists at Hamilton's Ruakura Research Centre have inserted a synthetic basic human protein into cattle foetuses in an experiment to improve the treatment of multiple sclerosis, an incurable neurological condition affecting coordination. • The project involved inserting a synthetic basic human protein called myelin into dairy cattle to produce a special protein in their milk. • Dr Steele said there was every indication it could have helped MS sufferers. The protein's beneficial effect was widely known, but not enough could be produced • Multiple Sclerosis Society president David Glenn said the project had a lot of potential for the country's 3500 sufferers and he was disappointed at the court's decision. Genetic engineering was one area of research that could result in a cure.

	• Agriculture Minister Jim Sutton attacked the Greens' attitude, saying MS was a devastating disease and it was cruel to snatch away the hope of a cure. 2 Negative • Sixty pregnant cows with human genes may be slaughtered after a High Court ruling has thrown one of the country's best-known genetic experiments into doubt. • Ms Bleakley said yesterday that the court ruling showed the risks were not properly evaluated and "we've won that part."
World's first genetically altered babies born, May 5	Pos 2 4 Positive • The world's first genetically modified babies have been born after women unable to conceive naturally underwent a revolutionary new fertility treatment used by scientists at a United States medical facility, a researcher confirmed today. The Institute for Reproductive Medicine and Science of St. Barnabas Medical Center in West Orange, New Jersey, has used the technique to produce 15 healthy babies, the oldest of whom turns 4 years old in a month, said Dr Jacques Cohen, scientific director of assisted reproduction at the institute. • "I don't think this is wrong at all," Cohen told Reuters. "And I think we have to look at the positive part here. I think this did work. These babies wouldn't have been born if we wouldn't have done this." • The researchers believe the technique helps women conceive who had been unable to do so because of defects in their eggs. • Of the 15 babies produced by the technique used at the institute since 1997, 13 lived in the United States, one lived in Britain and another in France, Cohen said. He said the institute used the technique on 30 infertile women. Seventeen failed to become pregnant and one become pregnant but had a miscarriage, he said. The remaining 12 women delivered babies, with three of the women having twins. "So far, from what we understand, they are doing OK," Cohen said of the babies. "And those two that had the mixed mitochondria, they're doing OK, too." 3 Neutral • He said his institute was the first to use the technique called ooplasmic transfer, but other fertility specialists had followed. He said another 15 babies had been born following the use of the technique at different facilities. Cohen dismissed criticism by some scientists who labeled as unethical a technique that in a sense leaves children genetically with two mothers. • In the technique, doctors take an egg from an infertile woman, the egg from a donor woman and the sperm from the infertile woman's mate. The doctors then suck out a little bit of the contents of the donor egg - the cytoplasm - using a microscopic needle manipulated by tiny robotic arms. The cytoplasm is then injected into the infertile woman's egg along with the sperm to fertilize it. • Cohen said the technique did not manipulate the genes, but merely added innocuous extra genetic material. "We haven't changed any genes," he said. "That's a huge step compared to the little thing that we did. But you could say there would have normally been mitochondria from only one source (the mother). Now there's itochondria from two sources, and therefore there's two different types of mitochondria DNA there." Mitochondria are minute structures vital to energy production within a cell that contain genes that are located outside a cell's nucleus, home to most of the cell's genes.
Gene-cow decision upsets MS sufferer, May 05	Pos 1 3 Positives • Mrs Worth is now outraged to hear that an experiment involving genetically

	engineered cows, which could help MS sufferers, has been put on hold. When I heard I thought, how dare they! It's too late for me, but this was a chance for the young people being diagnosed with MS to get some help. It's very cruel." • It was hoped the calves - due next month - would produce a special protein in their milk which, if beneficial, could potentially be purified into a solid pill for MS sufferers. • "If the cows were in fact slaughtered, it sends a very strong signal internationally about New Zealand's stance in respect of some newer technologies, and I believe that would have flow-on effects in attracting overseas investors." 2 Negatives • Greens co-leader Jeanette Fitzsimons yesterday reiterated her belief that genetically engineering cows was not the only way scientists could make the protein. "I don't think this trial would have produced any benefit to MS sufferers that could not be produced in other ways." • While MS deserved further research, Ms Fitzsimons believed the main thrust of the experiment was to perfect genetic engineering techniques and produce "designer milks" for human consumption. "MS has been tacked on to this project to try and get greater public support. That's unfair to MS sufferers because it's holding out the prospect of treatment," she said. 1 Neutral • Dr Steele said the court's decision did not spell the end of the trial. "[The judgment] is not about the rights or wrongs of the research, it's about technical points of law."The judge made the comment that the fact that he has set aside the application does not necessarily mean that the decision, when properly reconsidered, should be any different from the original decision."
Northland lodge bans GE humans, May 06	Neg 1 3 Neg • Following yesterday's announcement that genetically modified babies had been born in the United States, a lodge in the Bay of Islands has taken the unusual step of banning genetically-engineered guests.Orongo Bay Lodge said they had chosen to exclude GE humans because an increasing number of foreign guests were concerned about genetic engineering. • The lodge, which grows its own vegetables and keeps hens and goats, has recently been granted organic status and lodge chef Michael Hooper said they were "drawing the line" at modified humans."When we were given the final examination for our organic certification we were even questioned about the content of the waste from our free-range hens and goats. That concern, surely, will apply also to body products from humans on the estate," he said. • Mr Hooper said the lodge had banned GE humans so they would not have to deal with their waste products. "After all, we totally reject the use of GE vegetables, preservatives and agricultural chemicals. I see it as the same issue." 1 Neutral • While it is illegal under New Zealand's human rights legislation to discriminate on the grounds of an organism carried in the body, Hooper said that genetically-engineered guests were entirely new organisms and could be denied entry to the lodge.
Editorial: Reprieve for cows bearing MS	Pos 2

hope, May 07	4 Positive • Take multiple sclerosis, the neurological condition which affects coordination. The search for a cure has long defied scientific toil. However, a new direction of hope has opened with an experiment at the Ruakura Research Centre which aims to produce proteins that could improve treatment of the condition. No wonder New Zealand's 3500 multiple sclerosis sufferers are among those most angered by a High Court ruling that could mean the work cannot continue. • For good measure, the Greens have thrown in a conspiracy theory; that the Ruakura experiment is really all about perfecting genetic techniques so that the dairy industry can make designer milks. Even if that were correct, would that be so bad, especially if an effective treatment for multiple sclerosis was a by-product? Contrary to the belief of many environmentalists, the benefits of genetic engineering will not flow exclusively to Monsanto or other multinationals. • Effectively, the Greens are implacably opposed to all genetic research. They subscribe to the "precautionary principle," which has acquired a certain academic respectability in recent years. It is time it was challenged. Essentially the principle says, "Unless we can be convinced nothing can go wrong, nothing should be done." If the world were run by that principle, no risk would be taken, no progress would be possible. To most people, "precaution" means proceed with care. It is time the ordinary meaning was restored to the word when it is used in environmental debate. Let us hope the commission of inquiry into genetic engineering will apply the term properly in its report. • A fortnight's reprieve gives hope that AgResearch will be able to continue the experiment while the risk management authority, as a matter of urgency, corrects the deficiency in its decision. The High Court will be asked to sanction that course. If, however, the court continues to find fault, the Hazardous Substances and New Organisms law will have to be amended. Fortunately, the Government seems committed to such action. The Environment Minister recognises that innovation should not be unnecessarily restricted. 1 Neutral • At Ruakura, the state agency AgResearch has made an investment of two and a half years' research into the experiment. Even in a world grappling with the issues raised by genetic engineering, the termination of the project could dent New Zealand's increasingly fragile reputation as a research centre.
Up to 30 gene children living in the US, says doctor, May 07	Pos 1 2 Positive • The St Barnabas researchers treated 30 women who gave birth to 15 babies. But another 15 have been born after the use of the technique at other facilities in the US, Dr Cohen said. • Researchers at St Barnabas injected donor DNA that contained mitochondria, tiny self-contained structures that use oxygen and nutrients to create energy in cells, into the defective eggs. They found the technique allowed the otherwise infertile women to have successful pregnancies. 3 Neutral • Genetically altered babies may have been born over the past four years under the revolutionary treatment that came to light at the weekend. Researchers revealed yesterday that up to 30 children could be carrying genes from three people - father, biological mother and female egg donor. The technique has been used since 1997, but has only now attracted attention after researchers checked for the first time to see if the children ended up with genes from both women. The oldest of the children turns four in a month, says the man who has helped pioneer the technique, Dr Jacques Cohen from New Jersey's Institute for Reproductive Medicine and Science at St Barnabas.

	• One of Australasia's leading fertility experts, Professor Robert Jansen, medical director of Australian fertility clinic Sydney IVF, said the technique was not new. It was presented to the World Fertility Congress by the St Barnabas researchers in Sydney two years ago. " ... it's nothing new and it might well be better treatment for infertile women than having a whole egg donated, in other words having someone else's child." The treatment is used for a rare form of infertility in women who have fertile eggs but whose resulting embryos die before they can be implanted in the uterus. • The view of most experts was that the children were in no danger from having their eggs manipulated in this way.
Unhappy scientist quitting gene cow project, May 08	Neg 1 2 Negative • Last week, the High Court at Wellington threw the work into doubt when it questioned the Environmental Risk Management Authority's decision to approve the research. The authority has been told to reconsider its decision. That prompted calls from the Greens to have the genetically engineered pregnant cows destroyed because they could theoretically be classed as illegal organisms under the Hazardous Substances and New Organisms Act. • Meanwhile, the debate about the genetically engineered cows continued yesterday. The "Genes and dairying" website run by a Waikato University academic called the experiment "embarrassing nonsense." Professor Dick Wilkins, of Waikato University's biological sciences department, would not name the "expert" quoted on the website as saying the medical justification for the research - that it would help to find a treatment for multiple sclerosis - was "potentially very embarrassing and damaging ... and simply would not stand up to serious review." 1 Neutral • The scientist at the centre of an experiment on human genes in cows has quit in frustration over continuing delays to his work.Dr Phil L'Huillier, team leader of the AgResearch trial that has implanted a human gene into cows for multiple sclerosis research, will be working for a private company overseas when or if the calves from the experiment are born.
GM baby reports spurs new law, May 08	Neutral 1 Negative • Bioethicists labelled the practice human cloning and called for experiments to stop while the community discussed the implications. 2 Negative • Reports of genetically modified babies in the United States have lent urgency to the Government's moves to legislate. The Government is working on melding two bills covering gene and reproductive technology, with a cabinet paper planned for the end of the month. Prime Minister Helen Clark said yesterday: "We are concerned ... as all Western societies are. There is a gap in the law." But it was a difficult area in which to get the legislation right. "It's an area of the law where technology and science are moving well ahead of our capacity to rewrite law, but we will have the best stab at itwe can." • Helen Clark said that when the laws were first proposed there was a feeling that cloning was almost a "science fiction fantasy which was years away." "It is a here-and-now issue. If it is possible for it to happen in the States, it is possible to happen here."
Care not panic with gene law, urges society, May 09	Neutral 2 positive

	• "It is counter-productive to rush legislation through because of the unsubstantiated fears that ART [assisted reproductive technology] is out of control." Prime Minister Helen Clark had said that reports of babies having their genetic make-up altered had given the Government a sense of urgency in advancing legislation to deal with the issue in New Zealand. • It has been reported that the first genetically modified humans have been born in the United States after genes from the eggs of donor women were added to the eggs of infertile women. 2Neutral • The Infertility Society has called for "responsible debate, not panic," before any law is passed on the genetic alteration of humans. The society supports laws to guide the use of this kind of technology but wants more public debate on it, says its executive officer, Robyn Scott. "Infertility and its treatment is not well understood by the general public and yet it affects one in every six New Zealanders. "While legislation is needed, it is also vital that whatever we put in place protects the rights of everyone involved and is sound and practical. • "While not legislated, [ART] is managed very responsibly and conservatively by world standards." New legislation would strengthen accountability around ART and the governing ethics body, but there was no need for a heavy and expensive regulatory authority, she said.
Food firms moving off GM products, May 19	Neg 1 6 Negative • Genetically modified food may be slowly disappearing from New Zealand supermarket shelves, as more and more food manufacturers shun the technology. • Greenpeace's "true food" website guide says giant food companies, including Unilever, Goodman Fielder and Cerebos Greggs, are moving away from GM ingredients. • "It's a good result. It's nice to see companies moving away from GE but we won't be happy until the New Zealand food chain is GE-free altogether." • Five companies have moved from the amber category to the green, meaning they are now guaranteed GM-free. It had embarked on a programme to replace all genetically modified ingredients with non-GM alternatives. • “We are continuing the audit process and expect to have that completed by the end of the year,” he said. • Goodman Fielder’s corporate affairs director, Robert Hadler, said the company would not supply food products that contained genetically modified material. 1 Neutral • Companies that have moved from a red category to amber since the website was created include Unilever, Mainland, Goodman Fielder (which takes in the Quality Bakers brand), Allied Foods/George Weston, Pillsbury NZ, Frucor, Cerebos Greggs, Tip Top Ice Cream and Chateau Ice Cream.
Dialogue: Doom and Gloom stands in the way of progress, May 22	Neutral 4 Neutral • Many recoil at the idea of genetic engineering. But why, asks SHELLEY BRIDGEMAN*, must we always assume the worst about scientific developments? • Speaking of hungry people, proponents of genetically modified crops profess that this technology has the capacity to end starvation. It is clearly a biased, and as yet unproven, view, but surely it's too early to dismiss the claim out of hand. • Genetic engineering is an emotive subject. Few of us know much about the details, so it is easy to assume that it is dangerous. As soon as we hear of herbicide-resistant crops, we conjure up images of some indestructible super-

	weed that evolves to choke the entire Earth in its tentacles. • It is true that the issues of cloning and genetically engineered food will take a while to resolve and, who knows, they could well end up being the thalidomide of our times. But must we always assume the worst outcomes of any scientific progress?
GE Cattle research gets approval, May 25	Pos 1 1 Positive • The cows, carrying calves implanted with the synthetic human protein myelin, believed to help multiple sclerosis sufferers, will calve next month. 1 Neutral • The Environmental Risk Management Authority has given a stay of execution to six pregnant cows at Hamilton's AgResearch centre. The cows, pregnant with genetically modified calves, faced death after the High court ruled there had been deficiencies in the original ERMA approval.
Research calves spared in GM case , May 26	Neutral 1 Positive • Six cows, carrying calves implanted with the protein, believed to help multiple sclerosis sufferers, will calve next month. 2 Negative • Two judges had set aside the authority's approval, given in July, saying that the authority did not follow the proper steps when granting the application. • Overseas research showed that myelin could be made synthetically, she said, and AgResearch claims that it could be used to treat multiple sclerosis were unproven. 2 Neutral • The six genetically modified calves at the centre of the AgResearch human-genes-in-cows argument will survive following a decision by the Environmental Risk Management Authority yesterday. • The authority approved, with controls, AgResearch's experiment to insert a human gene into cows to produce human protein myelin in their milk.
The GE calf they wanted to kill, Jun 14	Neutral I Positive • The calves are the first to be born here with a human gene inserted to produce human protein myelin in their milk. Researchers say the protein could help multiple sclerosis sufferers. 2 Negative • But the fact that of the 51 cows implanted 45 did not succeed was a firm indication of how hit and miss the technology was. • "We believe that most New Zealanders are opposed to crossing human gene material with animals and that it crosses some very important ethical and cultural boundaries," she said. 1 Neutral • Although opponents of genetic engineering say the experiment offends most New Zealanders, they refused last night to suggest the newborn calves should be slaughtered and the experiment abandoned.
Searching for a genetic jackpot, Jun15	Pos 2 5 Positive • It can take eight years to work through the generations to be sure that particular calves have inherited the characteristics, such as high milk yields,

	that farmers want. ViaLactia has set itself the task of trying to short-circuit this process. If it can identify the genes that produce the desired characteristics, then it may be able to tell whether a calf will have the required traits even before it is born. • It is New Zealand's biggest single commitment to a field which University of Queensland professor John Mattick has called "the third great technology revolution." "It's not just the fact that this technology will transform all existing industries, but it will create entirely new ones," Professor Mattick says. But Professor Mattick, a scientific adviser to ViaLactia, is concerned that the company's structure as a wholly owned Dairy Board subsidiary will inhibit it from becoming a leading-edge global player. • Dr Marshall says that whoever makes that breakthrough may be able to cut costs dramatically by breeding cows which transform grass or crops into milk more efficiently - threatening the low-cost advantage that NZ dairy farmers now have. "It was a terrific attempt to participate in the knowledge economy. It had a chance to establish itself as the genomic company for the dairy industry [worldwide]," he says. • "A lot of the breakthroughs might end up giving us the ability to produce cows with different kinds of milk - designer milks for particular uses, so there could be certain cows whose milk is used for cappuccinos and other cows made for special kinds of cheeses." • Dr Marshall says much the same thing may be possible if ViaLactia's deal with Orion Genomics leads to identifying genes associated with particular characteristics in grass, such as being drought-resistant or growing more evenly in all seasons. "Maybe we can increase the energy level in the plant so the cow can benefit. Maybe we can increase the protein content," he says. "One of the things we will be targeting is things that will allow the cow to process the grass that she ingests more efficiently, so you get a higher yield of milk or meat from the same quantity of grass. "We expect that if that does occur, if she does get more efficient at converting that feed, there will be less methane emitted - less waste per unit of milk, and so less greenhouse gases." ViaLactia - the name means 'Milky Way' in Latin - is a small company with just 15 staff, including three scientists recruited from Europe. Apart from the deals with Celera and Orion, it expects to contract out most of its work to NZ universities, crown research institutes and seed companies. 2 Neutral • Mongrel calves on a Waikato farm are unwitting guinea-pigs in a genetic experiment which could eventually transform New Zealand's dairy industry. • The Friesian-Jersey crossbreed calves have been bred by the Dairy Board's biotechnology subsidiary ViaLactia and the Livestock Improvement Corporation to inherit a medley of conflicting genes: Friesian and Jersey, high and low milkfats, and so on.
Our turn: Carving out our place in the sun, Jun 30	Neutral 1 Positive • We are living through two historic waves of innovation: information and communications technologies, including the internet; and biotechnology, or genetic engineering. While New Zealand debates the ethics of genetics, the seven successful economies examined here are pouring billions into both fields.
Biotech report wins praise from business, July31	Pos 1 2 Positive • Dr Warrington said concerns remained that New Zealand could miss the biotechnology boat while many countries sailed on with research, including on apples, in which New Zealand has led the world.

	• "We are extremely pleased the royal commission has accepted the need for us to be able to undertake field trials of GM crops to test their environmental impacts prior to commercialisation." 5 Neutral • Prime Minister Helen Clark yesterday released the commission's report which recommended against the extremes of banning the technology altogether or giving biotechnology companies free rein. John Wilson of Agritech NZ, a group of 55 technology exporters, was just one comforted by what many described as a common-sense approach. "New Zealand is absolutely in a unique position to benefit from agritech business and it would be a tragedy not to continue [with GE research]," he said. Huge opportunities lay in store for New Zealand companies "provided there's not a total bureaucracy". Dr Corran McLachlan of A2 Corporation said his company's biotech research was into existing genes, or "the reverse of genetic modification". • He supported GE science within suitable constraints. "It would have been a negative outcome if research had been stopped. It sounds like they've chosen good, moderate ground." • The report would help GE-related issues to be considered in a more rational, informed way than previously, Mr Carlaw said. • "Many people should read it from all sides of the debate because it provides a lot of background and factual material, as well as recommendations and discussion points as to how we can deal with some of these things." • The network had argued that the future economic, social, health and environmental well-being of the country depended on its scientists and developers being able to use gene technology responsibly and with appropriate caution, he said.
Spuds that fight back, July 31	Pos 1 4 Positive • In the future, potatoes could be grown in New Zealand which resist the pests that prey on them.And there are hopes of a virus-free pea. • Yesterday, the commission presented its findings to the Government, saying "biotechnology is the new frontier." • On the new frontier are the trials at Crop and Food Research of transferring a gene into potatoes so its leaves produce an insecticide which inhibits the tuber moth pest. • The hope is the potatoes could be grown without pesticides. 1 Neutral • Or the shades of flowers could be changed by altering their levels of pigmentations.
Greens' fury at the GE nod, July 31	Neg 1 2 Positive • "As in the past, we should go forward but with care," the report says, comparing biotechnology with such great advances as the use of fire, the wheel, steam power, electricity and the microchip. • Auckland Medical School dean Peter Gluckman said: "It looks like a pragmatically sensible road map ahead for New Zealand." 3 Neutral • The commission's $6.2 million report says it would be "unwise" for New Zealand to turn its back on the potential of GM technology, but urges caution. • "It rejects the idea of New Zealand being free of all genetically modified

	material at the one extreme and the option of unrestricted use of genetic modification at the other." • The commission wants to make it easier for low-risk research to be carried out by lowering compliance costs and allowing for approval on a project-wide basis rather than for each individual organism used, and to toughen up high-risk research. 6 Negative • The Royal Commission on Genetic Modification has rejected a GM-free future for New Zealand, plunging into doubt the Green Party's backing of the Government. • A furious Green Party is not yet threatening to withdraw its support for the minority Labour-Alliance Coalition but that cannot be ruled out. • The issue won't go away and the fight isn't over. • Jeanette Fitzsimons accused the commission of having "chickened out and passed the buck". • She agreed it would be difficult for the Greens to support the Government if it embraced the 49 recommendations in their entirety. But added: "I don't want to explore options until I know what the Government will come out with, because it sounds like issuing threats, which is not what I'm doing." Asked if she ruled out withdrawing support, she said: "There are a whole lot of degrees of support for the Government." • She would not elaborate on the option of the seven MPs. But non-cooperation with the Government or abstaining on confidence issues are possibilities, without endangering the Coalition, which commands 59 of the 120 votes in Parliament. "No one in our position is going to say to a government, 'Regardless of what you do, we will support you'."The commission said organic, genetically modified and conventional agriculture could exist comfortably in the same environment - a claim rejected by the Greens and organic farmers.
Towards genetic engineering- with real caution, Jul 31	Neutral 3 Positive • It was called "Preserving Opportunities", a clear indication that New Zealand could not afford to turn its back on the brave new world of genetic engineering. • Among its 49 recommendations are suggestions that different types of crops, both genetically modified and organic, will be able to be grown in New Zealand, and a new provision allowing for contained release of a genetically modified organism • The approval process to grow genetically modified crops or breed calves with human genes is rigorous, and some experiments have been on hold because of the voluntary ban on new applications for GE experiments. 3 Negative • Also, in view of Maori concerns about GE, the commission recommended that the grounds for stopping a particular experiment be widened, for instance where there are significant social, ethical or cultural issues. • Greenpeace, for one, is not impressed. Spokeswoman Annette Cotter has

	called some of the recommendations for new bureaucracies "expensive and ineffectual"."You have to ask, how effective has the Parliamentary Commissioner for the Environment been on formulating policy, that's the question. This just means more people looking at the issue, and in effect what it will probably mean is field trials of genetically engineered organisms being rubber stamped." • The commission left the curly question of liability open - it made no recommendations and said the status quo remained. Unlike America, which has seen billion-dollar lawsuits over the accidental contamination of GE-free corn by a GE crop, New Zealand farmers would find it tough to get compensation if something similar happened. 1 Neutral • The commission recommends that the Ministry of Agriculture and Forestry play a bigger role in policing how GE crops are grown in New Zealand. It says MAF should develop an industry code of practice "to ensure effective separation of distances between genetically modified and unmodified crops".
Delight and anger at the GE report, July 31	Neutral 6 Positive • Prime Minister Helen Clark, who released the report, said it was the widest-ranging inquiry into GE, and the result was balanced and thorough. The Government would look carefully at the recommendations before acting. • "The Government is committed to a more dynamic economy driven by education, innovation, research and technology. • New Zealanders are already using some 20 medicines containing protein products produced in the laboratory, including interferon for multiple sclerosis and growth hormone to stop growth retardation. • Graeme Sinclair, the host of TV3's Gone Fishing programme and who has multiple sclerosis, welcomed the decision to allow trials, which he hoped could one day bring medicine breakthroughs. • Chairman Ian Warrington said it carried a strong message that there was a place for scientists in New Zealand. • The business community knew the future depended on how well science was used to "leverage up from commodities towards highly differentiated products". 6 Negative • She worried that the recommendations would force us into a future with GE, with no option to back out. "Despite all their nice words about keeping New Zealand's options open, the commission has recommended a faster path to the release of GE crops than we had before - destroying our current market advantage." • The Greens believed that a proposal for the "contained release" of GE

	products would ease the fears of many people while actually doing little to protect the environment. • Massey University lecturer and philosopher Scott Eastham was devastated by the report. "It seems pretty hopeless for those people who want a different relationship to the natural world. I can't see much hope for organic farmers." • The report was fairly superficial. "It leaves all the important powers structures in place. It leaves the power with the universities, the Government and industries and all of these people who have some objections to GE will feel very disenchanted because they're not really been taken any notice of. • "Organic farmers, who hoped New Zealand could trade on its clean, green image, coupled with GE-free products, were predictably angry. • Grower Marty Robinson, of Kerikeri, said a recommendation to use GE "buffer zones" was unlikely to work. He used the example of the varroa mite, which attacks bee brood. The mite had escaped from areas where it was meant to have been contained and attacked other parts of the country. If it could happen to the varroa mite, it could happen with genetically engineered crops.GE pollins would be even harder to contain, he said.
Royal Commission summarises its findings, July 31	Pos 1 4 Positive • It holds exciting promise, not only for conquering diseases, eliminating pests and contributing to the knowledge economy, but for enhancing the international competitiveness of the primary industries so important to our country's economic well-being. • We are recommending a new category - conditional release - where the use of a genetically modified organism can be made subject to terms and reporting back, as a further assurance of safety and to enhance the management of risk. • Technology is integral to the advancement of the world. Fire, the wheel, steam power, electricity, radio transmission, air and space travel, nuclear power, the microchip, DNA: the human race has ever been on the cusp of innovation. • Currently, biotechnology is the new frontier. Continuation of research is critical to New Zealand's future. As in the past we should go forward but with care. 1 Negative • They stressed that the safety and certainty of the science have yet to be proved, reflecting the fact that, at least for the moment, world consumer preferences are against use of genetic modification in food. First-generation genetically modified crops have shown few obvious benefits for consumers. 1 Neutral • Our consultations with the people of New Zealand showed that, while most

	were comfortable with genetic modification for medical purposes, many strongly opposed other uses.

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